MEDICARE PREVENTION DEMONSTRATION
Final Report

Donna E. Shalala
Secretary
Health and Human Services
1998

TABLE OF CONTENTS

TABLE OF CONTENTS (Cont.)

1.0 EXECUTIVE SUMMARY

This Summary Evaluation Report presents findings from the cross-cutting evaluation of the Consolidated Omnibus Budget Reconciliation Act (COBRA) Medicare Prevention Demonstration, a 4-year demonstration mandated in COBRA 1985 to test the effectiveness of offering disease prevention and health promotion services to elderly Medicare beneficiaries. This report also includes a summary of findings from evaluations conducted by the individual COBRA demonstration projects[1]. Two previous reports, submitted in 1990 and 1992, described the 5 COBRA demonstration projects and presented preliminary findings from 2 years of the demonstration. This report meets the Omnibus Budget Reconciliation Act (OBRA) of 1990 requirements for a final report.

1.1 Overview of the Project

In support of the demonstration, COBRA 1985 authorized $5.9 million over a 4-year period to fund project administration and funding for 2 years to collect health risk assessment (HRA) information; the delivery of disease prevention services (such as immunizations and clinical screens) and health promotion and education services (such as diet and nutrition workshops, and alcohol and drug abuse counseling) to Part B-eligible Medicare beneficiaries; and the completion of project-level and cross-cutting evaluations of the demonstrations. OBRA 1990 extended the evaluation phase of the demonstrations and increased funding to $10.5 million, in response to concerns that the effects of the demonstrations might not be measurable during the initial 2-year period. The cross-cutting evaluation was expected to answer two major questions: (1) did eligible beneficiaries use prevention services offered through the demonstration, and (2) did access to prevention services have predictable effects on Medicare expenditures, health services utilization, overall health status, and health-related behaviors? Each demonstration

[1] Also included are findings from a 6-year prevention demonstration conducted in North Carolina from 1986 through 1992, funded through a cooperative agreement with the Health Care Financing Administration. This demonstration implemented an experimental design and prevention services intervention similar to those that were implemented by the 5 COBRA demonstration projects.

project completed its own evaluation, addressing both these and many more narrowly-focused questions related to the projects' own interventions.

In April 1988, the Health Care Financing Administration (HCFA) awarded cooperative agreements to five academic institutions to manage and evaluate the demonstration projects. Two were implemented in cooperation with managed care plans (the University of Washington and San Diego State University) and three were implemented in fee-for-service health care delivery systems (Johns Hopkins University, the University of Pittsburgh, and the University of California at Los Angeles (UCLA)). The demonstrations ended in April 1994 (service delivery began in 1989 and ended in 1991).

1.2 The Prevention Interventions

The COBRA demonstration projects offered enrollees assigned to experimental groups access to free disease prevention and health promotion services[2] over a 2-year period, from May 1989 through April 1991. Each project used surveys and HRAs to collect baseline and followup data for both experimental and control subjects. The demonstration interventions differed among the projects, reflecting a range of options regarding design, measurement, and implementation.

The projects developed different methods of delivering and paying for demonstration services. In the Johns Hopkins and Pittsburgh demonstrations, physicians delivered most of the services. In other projects, allied health personnel substituted for physicians. Johns Hopkins subjects had to schedule their own demonstration visits; for the most part, project staff or cooperating providers scheduled visits for the experimental subjects in the other projects. In UCLA, San Diego, and the hospital portion of the Pittsburgh demonstration, providers were at risk under capitated payments for the complete package of demonstration services. In the other demonstrations, providers were paid for partially unbundled services. For example, Washington providers were paid a capitated rate for the preventive services package, plus $20 for the baseline HRA.

---

[2] Services offered varied among the demonstration project sites. All sites offered a medical history and a physical exam including height/weight and blood pressure/pulse. Health promotion activities offered by all five sites included counseling on nutrition, weight reduction, smoking cessation and alcohol use. A detailed description of services offered by all of the demonstration projects is provided in Chapter 3.

Projects differed in the sequence and mechanics of service delivery. For example, Johns Hopkins and Pittsburgh experimental subjects received vouchers for their demonstration visits. In Washington, participating clinics managed all scheduling and service provision. UCLA used annual Health Promotion and Screening Clinics to provide subjects with demonstration services at one time within a single site.

The COBRA projects used data from the HRAs in various ways. Pittsburgh provided its experimental subjects information on targeted interventions tailored to identified risks. Johns Hopkins provided all experimental subjects summaries of their Health Behavior Profiles and mailed copies to the appropriate physicians. San Diego referred both experimental and control subjects with confirmed high blood pressure for clinical followup. However, none of the COBRA projects studied how providers used information from these HRAs in providing care.

The order in which projects delivered demonstration services varied. Except for Washington, the COBRA projects provided a clinical screening visit before any counseling visits. However, Washington offered a counseling visit before the clinical visit. The content of clinical screening and medical interventions also varied. All projects except UCLA provided influenza immunizations. Only UCLA provided dental screenings. The COBRA projects concentrated their efforts in health counseling on six or seven priority areas. All of the projects promoted smoking cessation. Other common areas covered included nutrition and diet, alcohol use, mental health and sleep disturbance, exercise, and injury prevention.

1.3 Research Design, Sampling, and Measurement Issues

The interpretation of findings based on data from the COBRA demonstrations requires some understanding of the original research design, the sampling strategies adopted by the projects, and the shortcomings of demonstration data.

Data Pooling. Although the cross-cutting evaluation estimated demonstration effects using data that were pooled across all five COBRA projects, project-level analyses were critical to a balanced assessment of the demonstration. As noted, the projects varied in their initial demonstration designs, service packages, and enrollee risk profiles. To try to standardize measures and data collection methods, the evaluator worked with the individual projects to define

a minimum data set (MDS) of demographic, socioeconomic, and health-outcomes measures that would be common to all projects. However, the MDS provided only a partial solution to the heterogeneity within the COBRA demonstration projects. Therefore, this report presents both pooled and project-specific findings.

Enrollee Sampling. The COBRA projects randomly assigned enrollees to experimental and control groups to assure that the two groups were as similar as possible before the demonstration. Each project set certain limits on its target population (all, for example, excluded institutionalized and homebound elderly). Generally, random assignment seems to have achieved the goal of minimizing inter-group differences within each project.

Spill-Over Effects. In recruiting from the target populations, each project dealt differently with the possibility that control group members might have received some of the informational content of the interventions that should have been provided only to experimental subjects. This kind of contamination can reduce the size of estimated demonstration effects by causing behavior changes in the control group similar to those that are expected to occur in the experimental group. For example, Johns Hopkins carefully limited publicity about the demonstration. Conversely, Pittsburgh, faced with a difficult recruitment task in rural western Pennsylvania, widely publicized the demonstration. No data were available to test for spill-over effects. However, it is reasonable to assume that some spill-over may have occurred; therefore, statistical tests will probably under-estimate the size of demonstration effects.

Attrition Bias. Attrition, through failure to participate in followup interviews, death, or disenrollment from a participating health maintenance organization (HMO), could have threatened tests for demonstration effects by changing the distribution of demographic and other characteristics between the experimental and control groups. Over half of all enrollees completed the projects' final followup surveys. At the project level, the rate of participation in the final surveys did not differ between the experimental and control groups. For the most part, the characteristics of the experimental and control groups between the baseline and final surveys were not significantly affected by attrition.

The Demonstration Intervention. The COBRA demonstrations facilitate tests of how ***access to free prevention services*** affects expenditures, utilization, health outcomes, and health

behaviors. Therefore, an "intent-to-treat" model that compares all experimental subjects (regardless of whether or not they actually used demonstration services) to all control subjects produces the appropriate tests for demonstration effects. Since those experimental subjects who actually used demonstration services did so voluntarily, any estimates of how service use affects outcomes will be biased. Randomization, which minimizes bias due to self-selection, was used in comparisons of experimentals to controls but not in comparisons of users (of demonstration services) to non-users.

The Representativeness of Demonstration Enrollees. COBRA demonstration enrollees differed in many ways among the five projects, as they differed from the "average" Medicare beneficiary. Minority participation was almost non-existent in all projects except Johns Hopkins and UCLA. Education and income were lower in the Johns Hopkins and Pittsburgh projects than in the three West Coast projects. Measures of baseline health status and risk factors also varied among the projects. Compared to the average Medicare beneficiary, however, the average COBRA demonstration enrollee was hospitalized less often in the first year of the demonstration (with 1989 hospital admission rates ranging among projects from 7,000 to 26,000 per 100,000, compared to 33,000 per 100,000 for all Medicare beneficiaries). COBRA enrollees were also subject to lower annual death rates, averaging 2,556 deaths per 100,000 in 1989, compared to 4,700 per 100,000 in the larger Medicare population. Therefore, findings from the demonstration may not apply to less healthy Medicare enrollees, but they probably do describe the behavior of the kinds of beneficiaries most likely to use a Medicare prevention services benefit.

1.4 Effects of the Demonstrations on Prevention and Acute Care Service Expenditures and Utilization

The cross-cutting evaluation addressed two questions related to health services utilization: Did experimental subjects who were offered free prevention services use them, and was the availability of free prevention services associated with effects on non-demonstration services, including hospitalization rates, utilization of non-hospital acute care services, and Medicare expenditures? The evaluator used Medicare claims to assess utilization of demonstration

services. The evaluator also used data from Medicare claims and enrollment files to estimate effects of the demonstration on non-demonstration service utilization for the fee-for-service projects. Estimates for the managed care projects were based on HMO internal data files. Because expenditure data from Medicare claims cannot be compared to cost data generated by HMOs, and because the managed care projects provided limited data on skilled nursing facility (SNF) and home health agency (HHA) utilization, the only measures of utilization common to all 5 projects were numbers and lengths of hospital stays and numbers of office-based physician visits.

Utilization of Demonstration Services

Most experimental subjects used demonstration services (83 percent), but participation rates varied from a low of 63 percent in Johns Hopkins to 97 percent in San Diego. Users of services generally resembled non-users. However, being female, having less than a college education, or not reporting oneself to be in good health were characteristics more prevalent among non-users than users.

Most experimental subjects who used some demonstration services received clinical screening services, in part because most projects provided these interventions before counseling services. However, 90 percent or more experimental subjects in the 3 West Coast projects received both clinical and counseling services, compared to just over 50 percent in the Johns Hopkins project. On average, experimental subjects participated in four visits during the demonstration, with project averages ranging from 2.1 visits in UCLA to 7.6 visits in San Diego. Place of service reflected each project's initial demonstration design. For example, in the Johns Hopkins project, physicians provided 98 percent of demonstration services in their offices, whereas physicians and hospitals were nearly equally represented in Pittsburgh. Experimental subjects determined to be at risk based on results of the HRAs were often referred for specific interventions; patient compliance with these referrals varied widely, both among projects and among interventions. For example, although Washington subjects reported high rates of influenza immunization, only 6 percent received their immunizations through the demonstration; comparable rates were 27 and 34 percent in the first 2 years of the San Diego demonstration, and 66 and 35 percent in the first 2 years of the Pittsburgh demonstration.

HCFA spent slightly over $1.9 million providing HRAs and screening and health promotion services during the demonstration. Average expenditures per experimental subject[3] in each project reflected the number of subjects, service utilization rates, and reimbursement rates, ranging from $159 in Pittsburgh to $306 in Washington.

Effects of the Demonstration on Medicare Expenditures and Utilization

Estimates of demonstration effects on non-demonstration service utilization and expenditures were based on comparisons of simple averages between experimental and control subjects, a procedure that is appropriate when random assignment has been successful in balancing characteristics between these groups. At two of the sites (Johns Hopkins and San Diego), however, significant differences in the incidence of mortality between experimental subjects and control subjects were observed. At the Johns Hopkins site, the mortality rate among the control subjects was 2.8 percentage points greater than the rate among the experimental subjects ($p < .05$). At San Diego, the experimental subjects had a greater incidence of mortality, with a difference of 2.6 percentage points ($p < .05$). Although it was thought that differential mortality in the experimental and control groups might threaten the validity of estimated effects, analysis showed the differences to be small and not associated with experimental status when data were pooled across all projects.

Utilization of total Part A and hospital inpatient services. Frequency of Part A utilization, total annual reimbursements, and reimbursements per day alive increased among control subjects in the fee-for-service projects over the demonstration. However, despite the occurrence of some statistically significant differentials, there was no evidence to support the predicted demonstration effects of relative reductions in hospital use in expenditure among experimental subjects. In Year 4, analysis of pooled data showed that experimental subjects were less likely to use Part A services (a difference of 1.9 percentage points, $p < .05$), but differences in the final year in reimbursement measures, though negative, were not statistically significant. When data from both fee-for-service and managed care projects were pooled, the only differences that approached significance ($p < .10$) showed that experimental subjects were more likely to be

[3] Expenditures per beneficiary were calculated based on all experimental participants, regardless of utilization of services.

admitted to a hospital (in Year 2), and that experimental subjects experienced larger numbers of admissions (in Years 1 and 2).

Utilization of SNF and HHA services. The COBRA demonstrations do not appear to have lowered utilization and reimbursements for SNF and HHA care among experimental subjects. Across the three fee-for-service projects, experimental subjects' average annual reimbursements were $1,385 lower than control subjects' reimbursement in Year 4 ($p < .05$), but differences in previous years were not statistically significant. Estimates of demonstration effects based on other measures of SNF use, including frequency of use, number of admissions, and days per admission, were similarly inconclusive. Tests for effects on HHA utilization and reimbursement measures found no statistically significant differences between the experimental and control groups. In fact, use of post-hospital services by demonstration enrollees was more closely associated with health status, particularly evidence of hospital utilization before the demonstration, than to demonstration status.

Utilization of ambulatory care: total Part B and office-based physician visits. Estimates based on Part B and managed care plan data provide inconclusive evidence for demonstration effects on ambulatory care utilization and expenditure. In Years 3 and 4 (years for which complete Part B data were available), utilization of Part B and office-based physician services (which exceeded 80 percent overall and in each of the projects) was equally high among experimental and control subjects. Experimental subjects incurred both lower total annual Part B reimbursements than control subjects by $147 ($p < .05$) and $327 ($p < .01$) respectively and lower office-based physician reimbursements ($24 and $25, both significant at $p < .01$). However, no statistically-significant difference in numbers of visits was found.

These analyses indicate that the availability of demonstration services did not significantly affect utilization of Medicare-reimbursed acute care services. Demonstration effects were not apparent when Part A reimbursements were aggregated and estimated at either the pooled or the project levels. Part B reimbursements, when aggregated across the fee-for-service projects, were associated with statistically significant differences that might be considered demonstration effects. However, these findings were not supported by findings based on measures of ambulatory care utilization.

1.5 Effects of the Demonstrations: Variations Among the Demonstration Projects

The COBRA demonstrations implemented diverse programs but reached similar conclusions in their own evaluations: although successful in recruiting enrollees and in achieving some short-term changes in health behaviors and outcomes, the programs collectively produced limited evidence of immediate or lasting effects on health status, function, and behavior, and virtually no evidence for effects on health services utilization and expenditures. This report summarizes the major findings of the five COBRA demonstration projects and an earlier demonstration project, managed and evaluated by the University of North Carolina under a cooperative agreement with HCFA.

All of the projects randomly assigned enrollees to experimental and control groups, so that tests of the effects of access to free preventive services were generally made by comparing mean values of utilization, health status, and other measures of demonstration outcomes between experimentals and controls. Most of the projects tried to account for potential measurement problems due to attrition from the demonstration through death by estimating effects with and without enrollees who died during the demonstration. None of the projects tried systematically to determine whether or not the interventions had any unintended effects on the behavior of control group members.

Project investigators generally considered their enrollee recruitment efforts to be successful. Pittsburgh, challenged by the task of recruiting enrollees from an elderly population in rural western Pennsylvania, implemented and reported on differences in yield from two recruitment strategies: a non-aggressive mail invitation, which attracted 13.5 percent of the target population at a cost per recruit of $5, and an aggressive campaign of telephone follow-up, which gained 37 percent of the target population, but at a cost of $86 per recruit.

Those projects that compared the characteristics of enrollees and beneficiaries who declined to participate found enrollees to be neither very sick nor very healthy, when compared to refusers. However, once enrolled, the sickest, oldest, and least educated enrollees were least likely to use demonstration services. Only San Diego tried to determine why enrollees refused to participate in follow-up data collection. San Diego investigators learned that over a third left

due to lack of interest or time (and experimentals and controls were equally likely to drop out).

Experimental subjects made extensive use of certain disease prevention services (influenza immunization, certain screens) but frequently failed to follow up on referrals for services treating addictive behaviors (e.g., smoking, excessive alcohol consumption). Where the projects delivered demonstration services in more than one visit, participation in the first visit was always higher than in the second. Provider attitudes and behavior were no doubt important in securing enrollee compliance with scheduled appointments and referrals, but most of the COBRA projects did not study the role of providers. However, North Carolina and Pittsburgh noted the reluctance of some physicians to follow up on problems identified in the demonstrations through clinical screens.

Medicare Expenditures and Utilization of Non-Demonstration Services

None of the projects found evidence that access to free prevention services reduced the frequency of hospital admissions (experimental subjects exceeded control subjects in frequency of admissions in two projects early in the demonstration period), shortened the average hospital stay, or reduced the number of visits or total expenditures for physician services (again, two projects reported a tendency for experimental utilization of physician services to exceed control utilization early in the demonstration).

Health Outcomes

The projects estimated the effects of the project interventions on mortality, morbidity (e.g., bed days), health status, and measures of physical, social, and mental function.

Mortality. During the demonstration, death rates among control subjects exceeded rates for experimental subjects only in the Johns Hopkins project. In San Diego and Washington, experimental subjects were more likely to die than control subjects. Washington explored several potential explanations for this differential mortality. The possibilities include:

- that effects were concentrated in certain subgroups,
- that Washington enrolled an experimental group less healthy on average than its control group, and

- that the effects of particular demonstration interventions, in particular exercise, medication counseling, and living will counseling, may have elevated mortality risks among experimental subjects.

However, Washington did not find support for those explanations. Washington investigators suggested that their living will intervention may have encouraged relatively more experimental subjects with poor prognoses to reject aggressive life supports. A more detailed description of these findings is provided in Chapter 6. San Diego did not examine factors that may have contributed to the differential death rates between treatment groups.

Morbidity. In the projects that measured morbidity, no favorable effects were found on bed days, restricted activity days, or prevalence of chronic conditions.

Health status. During the demonstration, self-reported health status stayed constant or declined for both experimental and control group members. Four projects reported that experimental subjects declined more slowly than control subjects. However, these relative gains tended to be achieved within the first 2 years but lost after 4 years.

Physical, social, and mental function. North Carolina and Johns Hopkins reported that experimental subjects exceeded control subjects in quality of wellbeing (QWB), a multidimensional index with components that measure physical activities, social activities, mobility, and symptoms (e.g., mental function). However, this apparent demonstration effect disappeared when Johns Hopkins investigators removed enrollees who died during the demonstration (whose QWB score at death would be zero) from their analyses. Generally speaking, the COBRA projects found no lasting improvements in function related to the demonstrations.

Health-Related Behavior

The COBRA projects evaluated the effects of the demonstrations on behavior that could be related to access to disease prevention interventions (immunizations, screens) and health promotion interventions (addictive behaviors, diet/nutrition, and exercise).

Behavior related to disease prevention interventions. The most successful components of the COBRA interventions proved to be influenza and pneumococcal immunizations, which encouraged a sustained increase in immunization of experimental subjects

above the rising trend of immunizations among control subjects in all of the projects that provided these services. Washington and North Carolina investigators also reported increased utilization of clinical screening tests among experimental subjects. Additionally, Washington reported that relatively more experimental subjects with poor prognoses rejected aggressive interventions, a finding that could be attributed to Washington's living will intervention.

Behavior related to health promotion interventions. The projects experienced little success in changing addictive behaviors (only Johns Hopkins observed a reduction in relative risk among experimentals from decreased smoking) and mixed success in reducing lifestyle-related risks. Washington reported significant short-run demonstration effects on nutritional risk factors, especially excess dietary fat. San Diego reported increased frequency of stretching exercises and Washington reported increased physical activity among experimental subjects.

Conclusions

The COBRA projects generally reached similar conclusions on the overall effects of the demonstrations. Exhibit 1 summarizes these conclusions.

- Elderly Medicare beneficiaries will use prevention services, although difficulties in recruiting enrollees and rates of use varied among the projects.

- Offering packages of broad-based prevention services to elderly Medicare beneficiaries, as was done under the COBRA projects, did not reliably produce savings in Medicare expenditures within the observation period. Whether overall Medicare costs increased or decreased varied across sites and from year to year. Congress expressed particular interest in the effect of prevention services on utilization of inpatient services, but demonstration participants were not found to experience consistent, statistically significant decreases in use of either hospital or skilled nursing facility services.

- Offering packages of broad-based prevention services to elderly Medicare beneficiaries did not consistently improve health outcomes in this population, although some projects reported short term gains in health status.

- Offering packages of broad-based prevention services to elderly Medicare beneficiaries will change some health-related behaviors, particularly those that involve minimal beneficiary effort, such as immunizations. Less success is expected in addictive and lifestyle behaviors that require more sustained beneficiary effort and compliance.

1.6 Financing Prevention: Options for the Medicare Program

Congress originally designed the Medicare program to insure elderly and disabled persons against the costs of acute medical events. In recent years, Congress has added several preventive benefits, including influenza vaccinations, pneumococcal vaccinations, screening Pap smears, and screening mammograms. Congress intended that the COBRA demonstrations would test an alternative benefit model, one in which HRAs, disease prevention services, and health promotion services could be financed flexibly as a package. What have we learned from the COBRA demonstrations about preventive services in the Medicare program?

- The promise of access to prevention services through Medicare is attractive to both beneficiaries and providers in certain environments.

- When offered access to packages of broad-based prevention services, beneficiaries vary considerably among areas and settings in their willingness to use these services. Some of this variation reflects providers' roles in the process.

- The COBRA model does not appear to be cost-effective for Medicare at this time. The COBRA projects were most successful in encouraging use of those disease prevention services now covered by Medicare and shown in the research literature to be effective in an elderly population. They were least successful in encouraging behavior change in areas addressed by health promotion services, for which the literature provides less clear evidence of effectiveness.

- Three caveats are in order, however. First, the demonstration may have been too brief to have produced evidence of long-term effects on utilization and Medicare expenditures. Second, the COBRA approach to delivering preventive services, limited to one or two provider contacts, may have been insufficiently sustained to achieve real behavior change. Third, the package model made it difficult to evaluate the relative effectiveness of individual service components.

Implications for Policy

Although the COBRA demonstrations showed that some beneficiaries will use a broad-based Medicare prevention benefit, they did not show that exposure to this benefit will permanently change high risk behavior, alter rates of change in medical and functional status, or

reduce utilization of acute health care services. Therefore, at this time, findings from the COBRA demonstration projects do not support the addition, to the Medicare program, of the package of broad-based preventive services provided to beneficiaries under this demonstration.

Exhibit 1
COBRA Medicare Prevention Demonstration Evaluation
Summary of Conclusions Reported by Each Project

	Elders Will Use Preventive Services	Preventive Intervention Is Cost-Saving	Preventive Intervention Improves Health Outcomes	Preventive Intervention Changes Health-Related Behavior
ohns Hopkins	Generally successful; two-thirds used at least one preventive service	Little to no expenditure or utilization impacts (no increase in early years, no decrease in later)	Modest health status effect; (stronger for those who actually used preventive services) - "middle" group most likely to benefit	Early diagnosis probably more effective than attempts to change behavior Marginal improvement in smoking but almost none in physical activity or alcohol abuse. "Very hard to change behavior"
ittsburgh	Successful but difficult process recruiting participants: variations among risk groups in rate of preventive service use	No evidence for cost/utilization impacts, evidence for "cost shift": those who used preventive services would have used them without the demonstration	No bed-day, ADL effects, no mortality differences	Elders opt for "easy" services (immunizations, screens)
JCLA	Recruitment goals exceeded; attendance by both low, and high-risk enrollees at Screening and Health Promotion	No evidence for cost, utilization impacts	Scattered effects - stronger evidence for improved mental health	Strongest impacts of this study on health behavior, especially immunizations
an Diego	Recruitment/delivery of preventive services was successful	No evidence for cost, utilization impacts	Physiologic/psychologic improvements noted; overall decline in hypertension	Successful in achieving some lasting effects with minimal intervention
Washington	Integration of health promotion into primary care is possible for older HMO enrollees	No evidence for cost, utilization impacts	No effects by health status[a]. No effects on quality-adjusted life years (except excess deaths among experimentals)	At 24 months, effects on exercise, dietary fat and advanced directives - those who used preventive services improved health risk in 9 of 16 areas
North Carolina	Physicians responded to financial incentives to screen, but little follow up provided	No effect at 2 years; "trend" toward lower costs among experimentals in 4th year	No quality-adjusted life years effects at 2 years	No analyses

urce: COBRA Demonstration Projects Final Reports; North Carolina Demonstration Final Report

While there were no overall effects on health status among experimental enrollees, some health effects appeared when Washington investigators restricted their analysis to "survivors".

2.0 OVERVIEW OF THE PROJECT

This evaluation report presents findings from the COBRA Medicare Prevention Demonstration. Congress intended that the demonstration should test the feasibility and cost-effectiveness of providing disease prevention and health promotion services to elderly Medicare beneficiaries. This report fulfills Congress' requirement for a final Report to Congress on the demonstration.

2.1 Background

In COBRA 1985, Congress mandated a 4-year demonstration to test the effectiveness of providing disease prevention and health promotion services to Medicare beneficiaries.

The COBRA legislation set specific requirements for the demonstration. Schools of public health or departments of preventive medicine would administer the demonstration in at least 5 projects, including one rural area. Each project would enroll and provide a package of preventive services to Medicare Part B-eligible beneficiaries, including health screens (with cancer screening in at least one site); HRAs; immunizations; counseling and instruction in diet and nutrition; stress reduction; exercise; sleep regulation; injury prevention; alcohol and drug abuse issues; mental health disorders and their care; self-care, including use of medications; and reduction or cessation of smoking. The projects would test the effects of alternative payment methods and combinations of providers for delivering preventive services. Congress initially limited Federal expenditures for the administration of the demonstration and a cross-cutting evaluation to $5.9 million. In 1991, to support the extension of the demonstration, Congress increased the funding limit to $10.5 million.

To analyze the cost-effectiveness of a Medicare prevention benefit, the evaluation of the demonstration will address 3 questions:

- Did eligible beneficiaries utilize preventive services offered through the demonstration?
- Was there evidence that those who were offered preventive services through the demonstration experienced greater improvements in general health status and function, reductions in morbidity, and more positive attitudes on health risks and health behaviors than similar beneficiaries without access to demonstration services?

- Was there evidence that those who were offered preventive services used fewer acute care services and generated less Medicare expenditures than beneficiaries without access to demonstration services?

2.2 Implementation of the COBRA Demonstration

From 11 applicants that responded to a Federal Register announcement in May 1987, HCFA selected projects in 5 geographic areas to implement the demonstration. Awards were made in April 1988. Two projects proposed to recruit participants from managed care (HMO) plans and 3 proposed to recruit from beneficiaries served by fee-for-service providers:

Managed Care Models

- The University of Washington (School of Public Health and Community Medicine, Department of Health Services), collaborating with the Center for Health Studies and the Center for Health Promotion of Group Health Cooperative (GHC)

- San Diego State University (Graduate School of Public Health), collaborating with the Secure Horizons HMO and the Sharp Rees-Stealy Medical Group

Fee-for-Service Models

- UCLA (School of Public Health)

- The Johns Hopkins University (Health Services Research and Development Center), collaborating with the Center for Medical Education and Survey Research Associates

- The University of Pittsburgh (Graduate School of Public Health)

HCFA chose these projects to capture the variations in demonstration design that Congress required. Exhibit 2-1 compares major design characteristics among the five projects. The University of Pittsburgh's target population lived in 5 rural counties in western Pennsylvania. [1] Each of the other 4 projects drew enrollees from a metropolitan area (San Diego, Los Angeles, Baltimore, and Seattle-Tacoma). Three projects (San Diego, UCLA, and Washington) recruited enrollees through providers, whereas Johns Hopkins and Pittsburgh recruited directly from their target

[1] Clarion, Clearfield, Elk, Forest, Jefferson.

EXHIBIT 2-1

COBRA MEDICARE PREVENTION DEMONSTRATION
CHARACTERISTICS OF THE PROJECTS

CHARACTERISTIC	JOHNS HOPKINS	PITTSBURGH	UCLA	SAN DIEGO	WASHINGTON
Location	Urban	Rural	Urban	Urban	Urban
Beneficiary Recruitment Model	Population-based	Population-based	Provider-based (Fee-for-service)	Provider-based (HMO)	Provider-based (HMO)
Practitioner Model	Private physicians, solo, group practice, and hospital outpatient department	Hospital outpatient clinics, private physicians	Allied health personnel	HMO/Group Practice physician	HMO Clinics
Cancer Screening Component	Yes	No	No	No	Yes

Source: COBRA Medicare Prevention Demonstration Projects' Design Reports.

populations. The 5 projects delivered preventive services packages using various combinations of staff (physicians, allied health personnel) and settings (physicians' offices, hospital and HMO outpatient clinics). Two projects (Johns Hopkins and the University of Washington) implemented modest cancer screening components.

In 1987, HCFA also contracted with Abt Associates Inc., to conduct a cross-cutting evaluation of the demonstration and to provide technical assistance to the individual projects.

Although originally scheduled to begin in October 1988, the demonstration projects actually received permission to start enrolling beneficiaries in May 1989. Several factors contributed to the delay.

First, although HCFA had provisionally approved protocols from most of the demonstration projects in January 1989, negotiations continued over the exact content of each project's

prevention package and the appropriate Medicare payment rates for these services. Although the projects had defined their service packages in their proposals, within the broad guidelines of the COBRA 1985 legislation, HCFA proposed certain specific changes. For example, HCFA requested that Johns Hopkins remove mammography from its list of waivered prevention services in anticipation of regular Medicare coverage under the Medicare Catastrophic Coverage Act. Second, HCFA had to coordinate waiver cost estimates from each of the projects, and review and approve the estimates. Finally, many of the projects delayed concluding provider agreements until they had received approval of the estimated waiver costs. With permission to proceed, the COBRA demonstration projects moved rapidly to enroll beneficiaries and to begin offering preventive services.

A preliminary Report to Congress was submitted in July 1989. This earlier report described the planning and implementation of the demonstration. Another interim Report to Congress described preliminary findings based on data collected during the first 2 years of the demonstration; HCFA submitted this interim report in September 1993. The remainder of this third report presents findings based on data collected for the cross-cutting evaluation over the entire demonstration, a review of each demonstration projects' own evaluation, and an assessment of the cost-effectiveness of a Medicare prevention benefit. Chapter 3.0 describes the prevention interventions implemented by the 5 projects. Chapter 4.0 reviews the evaluation design and discusses approaches taken to overcome certain methodological obstacles. In addition, it describes the characteristics of the Medicare population enrolled in the demonstration. Chapter 5.0 presents cross-cutting evaluation results on the effects of offering preventive services to Medicare beneficiaries on Medicare expenditures and utilization. Chapter 6.0 reviews the findings of evaluations conducted by the COBRA demonstration sites. Chapter 7.0 summarizes findings of the evaluation and discusses implications for Federal Medicare policy on preventive service benefits for the elderly.

3.0 PREVENTION INTERVENTIONS

The COBRA legislation stipulated that the package of demonstration services include HRAs, clinical health screening, immunizations, and counseling and instruction in healthy behavior ("health promotion"). With the exception of cancer screening (to be included in the package of at least one project), the details of the service package were left to the professional judgment of project staff.

Components of the prevention package had 3 major uses, two of which involved data generation for the cross-cutting and project-specific evaluations. First, health screenings provided information that researchers could use to evaluate the health status of demonstration enrollees. Second, HRAs, screenings, and counseling and instruction provided information for enrollees who were hypothesized to respond by taking steps to change unhealthful behavior, and for health care providers who used the data to prescribe further clinical interventions as needed. Third, immunizations represented direct clinical interventions against infectious diseases.

The COBRA demonstration intervention included information and clinical components provided only to enrollees randomly assigned to an experimental group[1]. COBRA projects used the HRAs and some health screening services to collect health status data from control subjects. Thus, waivered services payments sometimes covered more than the services included in the intervention package. In fact, some projects negotiated separate rates for HRAs administered to control subjects.

This section compares the contents of intervention packages among the COBRA projects (see Exhibit 3-1). Given the unsettled state of research into effective prevention strategies for the elderly, it is not surprising that there is diversity among the projects. However, the following discussion shows again the importance of *project-specific* analysis of linkages between prevention services and outcomes.

---

[1] UCLA, however, offered demonstration services to the control group during the last wave of intervention service delivery.

COBRA MEDICARE PREVENTION DEMONSTRATION INTERVENTIONS

INTERVENTION	JOHNS HOPKINS	PITTSBURGH	UCLA	SAN DIEGO	WASHINGTON
CLINICAL SCREENING					
Medical History	x	x	x	x	x
Physical Exam					
height/weight	x	x	x	x	x
blood pressure/pulse	x	x	x	x	x
vision	x		x	x	x
hearing	x		x	x	x
dental	x		x		
breast exam	x				x
pelvic	x				x
digital rectal	x				x
gait/balance			x[b]		
Other[a]		x	x		
Lab Tests					
hematocrit		x		x	x
creatinine		x			
cholesterol	x	x		x	x
thyroid (TSH)				x	
fasting blood sugar/glucose tolerance		x			
Pap smear	x				x
stool hemoccult	x				x
Vaccinations					
influenza	x	x			x
pneumococcus	x				x
diphtheria-tetanus	x				x
HEALTH PROMOTION					
nutrition	x	x		x	x
weight reduction	x	x		x	
diabetes		x			
smoking cessation	x	x		x	x
alcohol use	x	x	x	x	x
mental health/sleep	x	x		x	x
exercise	x		x	x	x
oral health			x		
injury prevention	x		x	x	x
social work			x		
PT/OT			x		
medication	x		x	x	x[d]
incontinence	x		x		x
planning ahead			x		x
other[c]			x	x	

Source: COBRA Medicare Prevention Demonstration-Projects' Design Reports.

[a] Psychosocial/mental health screening and assessment.
[b] Provided in the first year only.
[c] San Diego health promotion also included: life changes, independent living, relaxation, self care, and using the health care system. UCLA health promotion also included a session on lifestyle and social relations.

3.1 Delivery of the Intervention

Although the COBRA legislation defined the broad outlines of the intervention package, the manner in which the COBRA projects delivered preventive services varied.

- **Who delivered the services.** In some projects (e.g., Johns Hopkins), physicians were responsible for clinical screening and health promotion services; in other projects, nurses and other health professionals assisted or substituted for physicians. One of the original evaluation objectives was to compare the use of physicians versus other health professionals in delivering preventive services.[2] It might be assumed that a physician's advice on health behavior carries more weight than similar advice from a nurse, and hence would be associated with more behavioral change among the recipients. However, the relative costs of physicians' time and evidence from previous research that many physicians devalue preventive care argue for the involvement of non-physicians.

- **Who scheduled the services?** The experimental group members were responsible for scheduling preventive visits in some projects (Johns Hopkins, Pittsburgh), whereas one or more providers were responsible in other projects.

- **Where were services delivered?** UCLA delivered all services in one physical location, but the other projects required the experimental subjects to seek services in different locations and at different times.

- **How were preventive services reimbursed?** Some of the COBRA projects (UCLA, San Diego, and the hospital clinic component of the Pittsburgh demonstration) were at full risk under capitated payment rates for the package of preventive services (see Exhibit 3-2), whereas others (Johns Hopkins, Washington,[3] and Pittsburgh's physician component) arranged partly unbundled or fee-for-service payment systems that imposed less risk. It is often assumed that providers look for ways to curtail services under fully capitated rates, to avoid the negative financial impact of high levels of utilization. In the COBRA demonstration, the potentially adverse effect on service delivery of a capitated rate could have been controlled if services were provided in a central location and could easily be monitored for deviations from intervention protocols by the project. UCLA met this criterion, but apparently experienced deficits because reimbursements were linked to attendance at their Health Day Clinic, not to total numbers of experimental subjects. Pittsburgh's hospital clinics represented a

---

None of the projects directly addressed this issue in their final report.

While services in Washington were provided through an HMO, and the preventive services package was provided at a capitated rate, providers were paid separately for the baseline HRA.

EXHIBIT 3-2

COBRA MEDICARE PREVENTION DEMONSTRATION WAIVERED SERVICES RATES PER PARTICIPANT, BY PROJECT

	EXPERIMENTALS		CONTROLS
Johns Hopkins			
HRA		$18.00	---
Screening with Pap		$145.00	---
Screening without Pap		$142.00	---
Counseling		$40.00	---
San Diego			
HRA		$19.50	$19.50
Screening and health promotion		$145.77	---
UCLA			
HRA		$25.00	$25.00
Screening and health promotion		$125.00	$125.00[c]
Pittsburgh			
HRA		$30.00	$30.00
Screening and health promotion - hospital clinic	Year 1 $150.00	Year 2 $80.00	---
Screening and health promotion - physician office	$150.00[a]	$45.00[b]	
Washington			
HRA		$20.00	---
Disease prevention		$74.76	---
Health promotion[d]		$88.92	---

Source: COBRA Medicare Prevention Demonstration Projects' Design Reports.

[a] Reimbursement represents average annual per capita, up to $250.00 per beneficiary.

[b] Includes $15.00 for immunizations.

[c] Controls participated in screening and health promotion in March and April 1991.

[d] Services included under "screening" and "health promotion" are as indicated in Exhibit 4-1, except Washington. Includes blood pressure/pulse; vision; and hearing in health promotion rather than screening.

decentralized and less readily monitored system, and one might have expected to find a greater tendency for clinics to limit the content of visits. Pittsburgh's physicians were paid on a fee-for-service basis, with a cap on total reimbursement for each subject. Although highly decentralized, this system should have encouraged providers to deliver all parts of an intervention package.

Johns Hopkins physicians were paid separately for screening and counseling. Because Johns Hopkins physicians normally expected fee-for-service payment, the potential for payment effects on the content of preventive visits was probably greater than in the Washington project, where physicians and other providers operated independent of reimbursement and where GHC and the University were jointly responsible for the integrity of the research.

Projects implemented specific delivery systems in the following ways:

Johns Hopkins: After completing the baseline interview, experimental subjects were sent vouchers for an initial preventive visit. Beneficiaries were responsible for scheduling all appointments. However, physicians were told which of their patients received vouchers, and were provided patient profiles constructed from the baseline health risk data. In addition to the initial visit, each experimental subject was entitled to a 6-month followup visit for education and counseling, at the physician's discretion. The preventive visit/followup visit sequence was repeated in the second demonstration year. Project investigators encouraged physicians to take an active role by contacting patients who failed to schedule appointments.

San Diego: Two weeks after completion of the baseline interview, experimental subjects attended a clinic screening appointment with physicians and allied health professionals affiliated with Sharp Rees-Stealy Medical Group in 5 locations. This appointment was scheduled with the participant by project staff at the baseline health evaluation and assessment. San Diego separated immunization clinics from the rest of the clinical intervention during each of the 2 demonstration years, and scheduled them just before the influenza season. At the initial clinic screening, providers encouraged experimental subjects to attend health education workshops. Eight separate workshops were held in various locations during the first year of the demonstration, each conducted by a professional health educator. A clinic screening and immunization clinic were also offered in the second year of the demonstration.

UCLA: Experimental subjects were told after completing the HRA that they would receive information by mail about a special Screening and Health Promotion Clinic at which they would receive feedback on the results of the HRA. In the mailing, experimental subjects were given a date and time of these annual screening

and health promotion clinics, which were held in a single location and included screenings, a targeted psychosocial assessment, feedback to participants, health education, and community referrals. Transportation was provided if necessary. Although results from each clinic screening were also reported to the beneficiary's primary care physician, it was usually the patient's responsibility to follow up on referrals. UCLA held 3 such annual clinics. However, as appreciation to the control group for responding to the annual HRA surveys, UCLA invited the control group to participate in the last Screening and Health Promotion Clinic.[4]

University of Pittsburgh: After completion of the HRA and blood draw, subjects were assigned to 1 of 3 groups: Two of the groups were experimental and were offered chits for a screening appointment. One of the experimental groups was offered services at a hospital. The second experimental group was offered screening services by a physician. A third group served as a control group. In addition, the participants in the two experimental groups received a letter stating that their HRA results were ready for review by the hospital or physician, depending upon which experimental group they were enrolled in, and requesting that they schedule an appointment. Hospitals and physicians received the appropriate HRA results as well, and were asked to schedule appointments with experimental subjects who failed to follow through on their own. Recommendations for education interventions were based on results of the HRA and screening. Providers were not reimbursed for intervention services until the results of the screening were received at the University.

University of Washington: Participating clinics scheduled the first round of health promotion/disease prevention visits for experimental subjects after completion of the baseline survey. In two clinics, Olympia and Federal Way, visits were delayed 3 to 4 months by a nurses' strike. Generally, GHC nurses provided the initial health promotion visit, which included an HRA, discussions about priority areas for behavior change and recommendations for followup during the subsequent disease prevention visit. Physicians were able to follow up on priority areas identified in the initial visit. GHC organized classes in exercise, planning ahead, hypertension management and hearing. Providers were encouraged to recommend the classes, but responsibility for registration was left to the participant. A second round of health promotion/disease prevention visits was offered in the second year

---

The last Screening and Health Promotion Clinic was held in March and April of 1991, at which approximately 47 percent of control subjects participated. Care was taken to avoid contaminating the control group. At the clinic, the control group received equivalent health screening measures, but a different educational intervention. While the experimental group received education on self care, the controls attended an informational session on long term care insurance. Nevertheless, the exposure of control subjects to the intervention may have affected the subsequent health care utilization and health behaviors.

of the demonstration. In addition to the visits with nurses and physicians, at least one clinic included a visit with a pharmacist to review medication use and compliance.

3.2 HRA

Although the projects collected HRA data on all experimental and control subjects (to identify behavior and conditions that put beneficiaries at risk of preventable medical events), the information provided by experimental subjects was often used to structure the intervention. Each project designed a questionnaire to collect information on beneficiary demographic characteristics and health status. In particular, topic areas addressing health status and relative risk included:

- Health Habits: exercise, smoking, alcohol use, sleep, diet/nutrition,
- Injury Prevention: history of falls, home and environmental safety, rehabilitation needs,
- General Health: existing conditions, perceived health status, medication use, incontinence and
- Psychosocial/Mental Health: quality of life, cognitive status, depression, social/family networks.

Most projects established threshold levels for specific parts of the profile (e.g., smoking or alcohol consumption) to identify whether the beneficiary was at great risk for certain conditions, and then used computer screens to identify risk (e.g., a beneficiary reporting consuming more than 5 alcoholic beverages at a time might be considered to be at risk).

The COBRA projects used the HRA data in various ways.

Johns Hopkins: Data from the lifestyle risk assessment component of the baseline survey, completed through phone interviews, were summarized in Health Behavior Profiles. Profiles of experimental group members were to be mailed to the appropriate participating physicians. The profiles summarized responses to specific questions, without comment and without specification of risk thresholds.

San Diego: All enrollees completed paper-and-pencil questionnaires as part of the baseline data collection. Two instruments were used: a "Life Assessment System," which included demographic, health history and habits/behaviors; and a "Health Status Inventory," which

covered health status and health care utilization history. The Center for Epidemiological Studies–Depression (CES-D) scale and a brief check of height, weight, and blood pressure were completed by trained project staff in various locations in the community. The baseline data were scored by a computer program which identified specific risk profiles, and the results were sent to clinicians who were expected to provide the screening services.

UCLA: At the Screening and Health Promotion Clinics, risk factors identified for experimental subjects through the HRA were reviewed with participants. The HRA was also used to refer people to the appropriate health education section at each clinic. A summary of the HRA, which included screening information, was also sent to the participant's physician.

University of Pittsburgh: Risk factors identified for experimental subjects through the HRA were summarized and sent either to the hospital (Experimental Group 1) or the physician (Experimental Group 2). The HRA results were combined with the health screening results, and compared to thresholds to determine eligibility for the interventions. Therefore, not all Pittsburgh subjects were eligible for every Pittsburgh intervention.

University of Washington: Project investigators decided to use HRA data collected in the baseline questionnaire to set thresholds that triggered recommendations for specific interventions during either (or both) the health promotion and disease prevention visits. Each experimental subject's profile was documented in a Provider's Guide and made available to nurses and physicians who provided the intervention services. The Provider's Guide also offered direction on how the nurse or physician might proceed with counseling or medical evaluations.

Although the COBRA project investigators in Pittsburgh and Washington tracked compliance and behavior of subjects with identified risk factors, none of the projects studied how providers actually used the COBRA risk profiles in delivering care.

3.3 Clinical Screening

The first major component of the intervention package included clinical screenings for preventable and treatable diseases, with an emphasis on reducing disability and dependency. All projects collected a brief medical history followed by a limited physical exam. In 4 of 5 projects (Johns Hopkins, Pittsburgh, San Diego, and Washington), a set of laboratory tests and immunizations were ordered. However, there were many differences among the projects in the specific exams and lab work that were performed, and in the type of provider conducting the exam.

All of the projects except UCLA included influenza immunizations in the intervention package. In 3 projects (Johns Hopkins, San Diego, and Washington), pneumococcal and diphtheria-tetanus immunizations were also provided. Generally, the immunizations were only offered if the beneficiary had not recently received one within the appropriate schedule of the immunization (e.g., every 10 years for diphtheria-tetanus).

The order and content of clinical screening services varied among the projects.

Johns Hopkins: Experimental subjects received a screening evaluation, history, physical, immunizations, laboratory evaluation and physician review in their preventive visit. A nurse could conduct the evaluation, but physicians were expected to provide the rest of the clinical services. Some physicians reportedly delayed or canceled components that they had performed recently or that should have been deferred to a more appropriate time (i.e., immunizations). Physician payment was reduced if Pap smears were not performed.

San Diego: After limited physical checks performed at baseline data collection, nurses and other health professionals conducted more intensive histories and screenings at the clinical visit. The team physician reported abnormal findings to the experimental subject's own primary physician. Referrals to other programs, e.g., smoking cessation, were provided, and subjects were scheduled for and provided with manuals used in the health promotion workshops.

UCLA: The Screening and Health Promotion Clinic provided screening and health promotion services in one place at one time. Clinical screens included the usual assessments (height, weight, blood pressure), as well as hearing and vision assessments, all of which were conducted by medical assistants supervised by a nurse practitioner or physician. A dentist conducted oral examinations and oral cancer screenings. Social workers conducted screenings for problems with alcohol, mental health, and social isolation. Physical or occupational therapists examined pre-screened subjects for rehabilitation needs, such as gait training or assistance devices. After the screening session, subjects also met with a nurse practitioner for an assessment triage and review of risk status for targeting the health promotion workshops that were held immediately after the clinical screening.

University of Pittsburgh: At the screening visit, the physician reviewed risk factors identified through the HRA, took some vital signs, and retested individuals identified as being at risk for depression and dementia as identified from responses to the HRA surveys. Services not considered part of the intervention were also performed and reported as part of the screening but not

billed as waivered services (i.e., services considered followup to conditions detected in the screenings).

University of Washington: Unlike the other 4 projects, most of the clinic screening component (excepting vision, hearing, and blood pressure assessments) came after an initial counseling visit. A nurse or physician conducted the screening evaluation, which included a review of immunization status, and a medical history and physical examination, which included, among other components, a breast examination for female subjects, evaluations for nutritional disorders and incontinence and orders for lab work and immunizations. In addition, at least one clinic included a visit with a pharmacist to review medication use and compliance. Primary care followup for abnormal findings was part of routine care at GHC.

3.4 Health Education and Promotion

While health education and promotion issues were generally addressed by providers as part of the clinical screening during the physical exam, some projects held formal workshops on specific topics, some projects scheduled separate visits during which individual counseling sessions were conducted, and others used a combination of approaches. Each site concentrated its health education and promotion activities on 6 or 7 priority risk areas. All projects promoted smoking cessation. Other common issues targeted for health education included nutrition and diet, alcohol use, mental health and sleep disturbances, and exercise and injury prevention.

Projects implemented education and counseling interventions in various ways.

Johns Hopkins: Investigators expected the health promotion intervention to be part of a one-on-one session between patient and physician in an office or clinic setting. To support this effort, a substantial continuing medical education effort was implemented by the Center for Medical Education of the state medical society. Education and counseling were expected to be part of the initial prevention visit, with additional counseling provided in the 6-month followup, as needed. However, some physicians devoted the entire preventive visit to counseling patients they had recently screened and examined as part of their regular practice.

San Diego: The health promotion intervention was designed by HealthWise, Inc., and included a series of workshops held during the first year of the demonstration. The "Growing Wiser" workshops focused on memory, mental alertness, life changes, substance abuse prevention and independent living; the

"Growing Younger" workshops focused on exercise, nutrition, relaxation, self-care and using the health care system. The project deliberately located workshop sessions in non-medical settings (senior centers, business conference rooms) to stress the wellness (rather than sickness) theme. Counselors followed up experimental subjects by telephone to track and encourage recommended behavior change, to counsel on problems encountered, and to check on follow-through with referrals.

UCLA: Health promotion activities were included in the Screening and Health Promotion Clinics. For example, in Year 1, all experimental subjects received a large-group educational session, entitled "How to Talk to Your Doctor," and in Year 2 all experimental subjects received an education session on immunizations. After meeting with the geriatric nurse practitioner for an assessment and a one-on-one health promotion/counseling session concerning the geriatric HRA and results from the clinical screening (height, weight, blood pressure, vision, hearing, dental), experimental subjects were allowed time to participate in two additional health education sessions. The sessions that were available in the first year were diet and nutrition, dental health, exercise and fitness, home safety, lifestyle and social relationships, and smoking cessation. In the second and third years, the smoking cessation session was discontinued due to very low participation in the first year, and two additional sessions were added, one on hearing and another on visual impairment, with an emphasis on various adaptation devices and techniques for these common sensory impairments in elderly people.

University of Pittsburgh: If screening results indicated that experimental subjects were at risk for certain conditions, they received a letter and chits for education sessions addressing the critical issues, which covered nutritional counseling, weight reduction, evaluation for dementia or depression, alcohol counseling, and smoking cessation. These areas were selected to reflect prevalence of risk factors in the target population and the existence of measurable outcomes. Providers were responsible for contacting experimental subjects and arranging their participation. Physicians were offered training in the interventions. Physicians could also refer subjects to hospital clinics in which health educators conducted sessions on appropriate topics.

University of Washington: Investigators prioritized health promotion interventions according to expected savings through reduced utilization and potential for affecting health and behavior. Exercise, nutrition, and planning ahead (e.g., living wills), which were ranked in the top 5 with project staff, were considered high priority for inclusion in discussions during the counseling sessions. GHC provided voluntary classes in health-related behavior for experimental subjects. Primary care followup of abnormal findings discovered

through the health promotion and disease prevention visits was supposed to be implemented as part of routine care at GHC.

3.5 Discussion

The COBRA demonstrations designed and implemented diverse prevention interventions. In part, this diversity reflected choices that each team made about project structure (linkages with managed or fee-for-service providers, for example) and target beneficiary groups (rural or urban, low or middle income beneficiaries).

The interventions, most generally defined as the provision of subsidized packages of prevention services, were further augmented by the projects' efforts to provide non-financial incentives designed to encourage high use rates of these services. Projects differed in the degree to which they actively promoted use of the prevention packages among experimental subjects. For example, experimental subjects in Pittsburgh received color-coded vouchers for each service for which they were eligible. The vouchers included a description of the service and instructions for "cashing in" the voucher.

Efforts by projects to enroll beneficiaries and encourage waivered services use are expected and not altogether inappropriate in a voluntary demonstration. On the one hand, project activism reduces the value of the demonstration as a test of the primary component of the intervention, subsidized prevention services. In most small demonstrations, it is impossible to separate the effects of free care from the effects of intensive follow-up and promotion. On the other hand, maximizing the use of preventive services increases the chances that real effects of the intervention (e.g., changes in health status, attitudes, behavior, utilization, and cost) can be detected. Few preventive interventions have demonstrated high rates of efficacy. Therefore, achieving the statistical power needed to detect effects requires the maximum contrast in prevention behavior between experimental and control groups. Without the ability to limit the control subjects' use of (non-subsidized) prevention services, the demonstration sites can only achieve this contrast by promoting the use of prevention services by experimental subjects.

4.0 RESEARCH DESIGN, SAMPLING AND MEASUREMENT ISSUES

As the discussion of interventions in Chapter 3.0 suggests, the projects interpreted and implemented diverse models based on guidelines in the COBRA legislation. Understanding this diversity can contribute to a fuller understanding of findings from the evaluation. It is equally important to assess the research design, sampling, and data issues that the projects and the cross-cutting evaluator attempted to address. This chapter describes steps taken to meet the methodological challenges posed by the COBRA demonstration.

4.1 Data Pooling

The COBRA Medicare Prevention Demonstration projects shared certain features. Each assigned recruited enrollees randomly to experimental and control groups.[1] At intake into the study, each project collected baseline demographic, socioeconomic, health status, and health behavior data on both experimental and control group members. From 1 to 2 years later, investigators collected essentially the same information in subsequent follow-up surveys. All projects conducted at least two additional follow-up surveys.[2] The follow-up period includes up to 4 years from the baseline survey. After completing baseline surveys, the projects offered waivered preventive services to experimental group members. However, in another sense, the demonstration consisted of five very different projects. Neither Congress nor HCFA attempted to impose on the projects complete uniformity in the preventive services package offered to experimental subjects, in the risk profiles of participating beneficiaries, or in the measures investigators might choose to determine the effects of the demonstration. Although the COBRA legislation included some comments on the content of the preventive services package and on the overall demonstration design, the projects responded differently to these general requirements.

---

[1] Most projects attempted to achieve numerical equality in the experimental and control groups. However, Pittsburgh assigned enrollees to two experimental groups and aimed to achieve a 2:1 ratio of experimental to control subjects. In addition, Pittsburgh and UCLA assigned pairs (subjects and spouses or other partners), so that totals of enrollees assigned to each group did not exactly match their proposed sampling fractions.

[2] Although Pittsburgh conducted two additional follow-up surveys, the final follow-up survey represented a *sample* of control and experimental participants. The sample frame was defined by risk of vascular disease, disability and hospitalization. Slightly less than one-third of the enrollees (experimental and control subjects) were selected for this final follow-up interview.

While offering promise of gains in basic research into health behaviors and outcomes among the elderly, this design posed a challenge to the cross-cutting evaluation.

To facilitate pooling of data across projects, the cross-cutting evaluation contractor worked with the individual projects to develop a MDS for the demonstration. In some cases, the projects agreed on common definitions. In others, the evaluation contractor developed coding systems to standardize diverse measures across projects. For example, the evaluator re-coded measures of living arrangement, which were treated differently by each project, into a simple dichotomy (lives alone, lives with someone). The MDS incorporated data collected by each project that defined certain characteristics of the interventions (the package of preventive services), the socioeconomic and demographic characteristics of the enrollees, measures of functional status, and measures of health behavior. The evaluation contractor also defined a minimum set of service utilization measures to facilitate comparisons of the managed care projects' utilization data with similar data for the fee-for-service projects taken from Medicare claims and eligibility files.

In spite of these efforts, the MDS represents only a partial solution to the challenges posed by diversity within the demonstration.

Because the projects developed different service packages (as described in Chapter 3.0), different methods for delivering services, and different data collection instruments and techniques, real differences in the demonstration interventions and the data generated from them remained. HCFA adopted the following strategies to accommodate this situation:

- Each project completed an evaluation that captured the unique characteristics of its own program. Chapter 6.0 of this report reviews these evaluations.

- The cross-cutting evaluator conducted analyses based on data pooled across all projects on a portion of the MDS common to both managed care and fee-for-service programs. Estimates of the differences between experimental and control subjects were adjusted for program type to account for effects associated with managed care versus fee-for-service systems. Estimates were also adjusted for specific projects to account for the effects of otherwise unmeasurable differences in the programs, in the

demographic characteristics of enrollees, and in the health services markets of the five projects.

4.2 Factors Affecting The Internal Validity of Demonstration Findings: Enrollee Sampling

The COBRA demonstration projects assigned enrollees randomly to experimental and control groups. Randomization can minimize variation between experimental and control groups in characteristics that might influence participant behavior and health outcomes, such as age, health status, and prior health care utilization.

The design of each demonstration project dictated the appropriate strategy for recruiting potential enrollees. The three provider-based projects (UCLA, San Diego, and Washington) recruited beneficiaries from the case lists of participating physicians or HMO clinics. The two population-based projects (Johns Hopkins and Pittsburgh) recruited beneficiaries living in the ZIP Codes or counties targeted for the demonstration. Beneficiaries recruited for the Johns Hopkins project had the additional criterion of identifying as their primary physician one of the physicians who had agreed to participate in the project.

HCFA and the COBRA projects jointly established eligibility criteria for participants. All beneficiaries were required to be enrolled in the Supplementary Medical Insurance (Part B) program; coverage was verified annually throughout the demonstration by HCFA. Individual projects defined additional criteria to reduce the risk of contaminating the study design and to facilitate data collection. For example, all projects excluded the institutionalized and homebound elderly, and set minimum age criteria of 65 years, which excluded the disabled and end stage renal disease (ESRD) Medicare beneficiaries. One project (Pittsburgh) excluded beneficiaries over the age of 86 years.

After identifying the target population, each project defined a sampling frame from which beneficiaries were recruited (see Exhibit 4-1). San Diego, UCLA, and the University of Pittsburgh recruited from the entire target population. The University of Washington and Johns Hopkins, on the other hand, sampled from a specific population to define a recruitment frame.

As shown in Exhibit 4-1, the total number of demonstration enrollees in the beginning of the project was 14,385, approximately half of whom were assigned to the experimental groups.

EXHIBIT 4-1

COBRA Medicare Prevention Demonstration
Sample Selection

	Johns Hopkins	Pittsburgh[a]	UCLA[a]	San Diego	Washington
Sampling Frame	12,111	23,000	4,360	11,140	5,013
	Medicare beneficiaries residing in 7 ZIP Code areas of Baltimore City, stratified by type of provider.	Medicare beneficiaries residing in 5 rural counties of Western Pennsylvania, age 65-79, who were non-institutionalized ambulatory, and without a recent cancer diagnosis.	Medicare beneficiaries who are patients of physicians affiliated with the Clinical Faculty Association.	Medicare beneficiaries enrolled in the Secure Horizons HMO and receiving care from the Sharp Rees-Stealy Medical Group.	A random sample of Medicare beneficiaries enrolled in 1 of 4 GHC clinics.

						All Sites
Total Sample Size	4,236	3,880	1,911	1,800	2,558	14,385
Experimentals	2,119	2,655	973	899	1,282	7,928
Controls	2,117	1,225	938	901	1,276	6,457

Source: COBRA Medicare Prevention Demonstration Case Study and Minimum Data Set (MDS).

[a] Pittsburgh and UCLA randomly assigned subject/spouse (or other partner) pairs. Thus, sampling fractions do not match the expected 2:1 (Pittsburgh) and 1:1 (UCLA) ratios.

Because Pittsburgh had two experimental groups (one group received intervention services from a physician; the other group received intervention services from a hospital), the experimental group in Pittsburgh was approximately twice the size of the control group. Pittsburgh and UCLA assigned subject/spouse (or subject/other partner) pairs, resulting in more experimentals than suggested by each project's sampling fraction.

Random assignment is widely considered to be a superior evaluation design because it can eliminate bias due to self-selection into the group receiving the demonstration intervention. However, a demonstration design that incorporates random assignment sometimes may be weakened by spill-over effects and by differential attrition.

Spill-Over Effects

If enrollees are randomly assigned from the same geographical area or institutional setting, it may be impossible to prevent spill-over of publicity about the intervention from experimental (the intended target) to control subjects. When part of the intervention is itself advice, e.g., improving health behavior, both experimental and control subjects may respond to the message. Participation in baseline data collection through HRAs may cause control group members to reassess and change their behavior, without benefit of the special preventive services offered through the demonstration. This risk of contaminating subjects has the potential to reduce differences in outcomes between experimental and control subjects, complicating the process of detecting effects of the demonstration.

It is difficult to be certain that spill-over occurred, although the projects were conscious of it as a potential problem. For example, Johns Hopkins minimized publicity about the demonstration in its target areas of Baltimore to reduce the risk of contamination. Johns Hopkins investigators were also anxious to forestall heightened expectations among control subjects and among those who would be ineligible for various reasons. Conversely, Pittsburgh, facing a difficult enrollee recruitment task in rural western Pennsylvania, conducted an intensive publicity campaign, preferring to maximize participation at the possible expense of changing control group behavior.

There is no way to be certain that control subjects were influenced by the demonstration interventions. In interpreting findings on effects of the demonstration, we conservatively assume that some contamination may have occurred and that estimates may be biased, suggesting that observed effects were smaller than they would have been without spill-over.

Attrition From the COBRA Demonstrations

Attrition may threaten the validity of measured demonstration effects in two ways:

- If attrition is distributed disproportionately among certain types of enrollees in both experimental and control groups (for example, beneficiaries at high risk for hospitalization), estimates of demonstration effects may change in size and direction (if risk is related to use of preventive services), but they will not be biased;

- If attrition affects control and experimental subjects unequally (more experimental than control group members drop out, or more high risk experimental subjects drop out), estimates of demonstration effects may be biased.

As noted, the COBRA projects recruited demonstration enrollees and, after gaining their consent for subsequent randomization, administered interviews to collect baseline data that included a HRA. Enrollees who completed the baseline interviews were randomly assigned to experimental and control status and were considered to be study subjects.

For assessing the implications of attrition, non-participants were defined as enrollees who failed to respond to the last follow-up survey conducted in each site. Although the number of follow-up surveys that each project conducted varied[3], the last follow-up survey conducted by each project was generally 4 years after the baseline surveys.

As shown in Exhibit 4-2, over half of the enrollees in three projects (Johns Hopkins, UCLA, and Washington) were identified at the last follow-up. Slightly less than half

[3] Pittsburgh, Johns Hopkins, and Washington conducted two rounds of follow-up surveys, generally approximately 2 years apart; UCLA and San Diego conducted four annual follow-up surveys.

(approximately 44 percent) of enrollees in San Diego participated in the last follow-up survey. Since the Pittsburgh project surveyed a sample of subjects, less than a third of enrollees in Pittsburgh ultimately participated in the final follow-up.

The percentage of beneficiaries continuing to participate in the demonstration across all projects at follow-up was significantly higher among control subjects (61 percent) than among experimental subjects (54 percent). As Exhibit 4-2 shows, this overall differential is somewhat misleading. Although control subjects tended to participate at higher rates in all projects except San Diego, the project level differences were significant only in Washington.

Information on enrollees' reasons for no longer participating in the demonstration was not systematically collected by the five demonstration projects. However, using the HCFA eligibility file, enrollees who died before the last follow-up interview in each site (see Exhibit 4-2) were identified. With the exception of Johns Hopkins, between 6 and 12 percent of the enrollees died before the final follow-up survey. In contrast, about two times as many enrollees (20 percent of experimental and 22 percent of control subjects) in Johns Hopkins died between the baseline and final follow-up survey. This finding is not surprising since enrollees in the Johns Hopkins project were older on average than enrollees in the other projects.

Differential rates of loss-at-follow-up on certain characteristics lead to some changes in the characteristics of experimental and control subjects between the baseline and the final follow-up data collection. On most measured characteristics, however, changes were small and not statistically significant. For example, while slightly more women continued to participate in the demonstration (59 percent at baseline and 62 percent at follow-up), the percentage of females participating in the demonstration was similar between experimental and control groups for both baseline and final follow-up samples (Exhibit 4-3). Similarly, while significantly more control subjects were minority (8.2 percent) compared to the proportion of minority experimental subjects (5.9 percent) at baseline, the difference in racial composition was also significantly higher among control subjects (8.5 percent) compared to experimental subjects (6.9 percent) in the final follow-up sample. This pattern of differences or similarities between both experimental and control groups at baseline and the final follow-up sample was consistent for most demographic variables.

EXHIBIT 4-2

COBRA Medicare Prevention Demonstration Evaluation

Final Followup Participation Status of Medicare Beneficiaries[a] By Treatment Group By Site

	All Sites		Johns Hopkins		Pittsburgh[b]		UCLA		San Diego		Washington	
Status	Experimental (n=7,915)	Control (n=6,434)	Experimental (n=2,119)	Control (n=2,117)	Experimental (n=2,655)	Control (n=1,225)	Experimental (n=973)	Control (n=937)	Experimental (n=899)	Control (n=901)	Experimental (n=1,270)	Control (n=1,254)
Participating at Followup	54.5%	61.1%***	67.3%	67.9%	29.7%	31.3%	61.9%	65.4%	44.8%	43.3%	85.6%	88.1%**
Not Participating at Followup	45.6%	38.9%***	32.7%	32.1%	70.3%	68.7%	38.1%	34.6%	55.2%	56.7%	14.4%	11.9%**
Dead at Followup	12.6%	12.9%	19.6%	22.0%**	10.4%	10.0%	11.5%	10.1%	8.0%	5.9%**	9.5	7.3***
Lost at Followup	33.0%	26.1%***	13.1%	10.1%***	60.0%	58.7%	26.6%	24.4%	47.2%	50.8%***	4.9%	4.5%

Source: COBRA Medicare Prevention Demonstration MDS.

** Differences between groups are significant at the .05 level

*** Differences between groups are significant at the .01 level.

[a] The percentages are based on each sites' final followup survey, representing the second followup survey for Johns Hopkins, Pittsburgh, and Washington, and the fourth followup survey for UCLA and San Diego.

[b] Pittsburgh sampled based on risk for the final followup. Approximately 200 subjects from eight risk groups were included in the sampling frame. Therefore, "lost at followup" includes both sampled subjects who did not participate in the survey and subjects not sampled for followup. Pittsburgh estimates its voluntary attrition rate from the risk groups selected for followup to be approximately 5.8% (personal communication, 10/94).

EXHIBIT 4-3

COBRA Medicare Prevention Demonstration Evaluation

Percentage Of Medicare Beneficiaries Participating In The Demonstration At Baseline And Final Followup By Selected Socio-Demographic Characteristics Across All Sites

	Baseline		Final Followup*	
	Experimental (n = 7915)	Control (n = 6434)	Experimental (n = 4306)	Control (n = 3929)
Female	59.2%	59.7%	61.5%	61.4%
Over 80 Years	8.3%	10.3%***	7.7%	8.6%
White	94.1%	91.8%***	93.1%	91.5%***
Married	60.0%	58.2%**	53.0%	54.0%
Alone	30.3%	31.1%	34.5%	33.2%
Lives in Special Residence for Elderly	3.3%	3.6%	3.2%	3.7%
Some College Education	31.2%	33.4%***	37.3%	38.4%**
Retired	73.4%	71.3%***	75.8%	75.6%
Highest Income	5.1%	5.7%	8.0%	8.5%

Source: COBRA Medicare Prevention Demonstration MDS.

Note: Percentages are based on observations without missing values.

** Differences between treatment and control groups are significant at the .05 level
*** Differences between treatment and control groups are significant at the .01 level.

* The percentages are based on each sites' final followup survey, representing the second followup survey for Johns Hopkins, Pittsburgh, and Washington, and the fourth followup survey for UCLA and San Diego.

While more octogenarians (beneficiaries over 80 years) were in the control group than in the experimental group at baseline and follow-up, the difference was significant only at baseline and not at follow-up. Similarly, fewer control subjects were married or completely retired at baseline compared to experimental subjects, but the percentage of married or retired enrollees was essentially the same between groups at follow-up.

Defining the Experimental Intervention

Experimental group members were exposed to an intervention that involved information (i.e., that free preventive services were being made available through the demonstration) and service provision for those who elected to act on this information. Chapter 3.0 described factors in the individual projects that affected the service delivery portion of demonstration activities. Experimental subjects could choose some or all of the available demonstration services.

It might seem reasonable to define the experimental intervention to include actual use of services to capture the effectiveness of the services offered to the experimentals subjects; however, a conservative test of the effectiveness of a Medicare prevention benefit should include all experimental subjects, regardless of whether or not they actually used preventive services. Net Medicare program expenditures under a new prevention benefit would be determined both by participation and by the savings potential of preventive health care. This approach recognizes that the demonstration intends to treat all eligible experimental subjects, and is correspondingly known in the research literature as the "intent-to-treat" model (Peto and colleagues, 1976).[4]

The intent-to-treat model preserves the advantages of randomization, which would likely be lost if the intervention were more narrowly defined to require use of demonstration preventive services. Not all experimental subjects will participate fully by using some or all of the preventive services offered through the demonstration. Those who do not participate may differ in certain characteristics from those who do. If these characteristics are

[4]Peto, R. et al. "Design and analysis of randomized clinical trials requiring prolonged observation of each patient. I. Introduction and design." British Journal of Cancer. 34:585-612(1976).

important determinants of some of the outcomes under study, this self-selection into user and non-user groups could bias estimates of treatment effects. Contrasts between all experimental and control subjects within the intent-to-treat model are unaffected by selection, because enrollees are randomly assigned to these groups. However, contrasts between experimental subjects who choose to use services and control subjects may be biased because it will be difficult to find that subgroup of control subjects most like the experimental users, particularly in the characteristics that predispose individuals to use preventive services.[5]

4.3 The Representativeness of Demonstration Enrollees

Within the broad eligibility guidelines determined by HCFA and the projects, HCFA did not require uniformity in beneficiary characteristics across the projects. Indeed, some projects did not attempt to represent the socioeconomic characteristics (race, income, education) of their areas.

As shown in Exhibit 4-4, there were several notable differences among projects in enrollee socio-demographic profiles:[6]

- Average age was highest in the Johns Hopkins project, where 16-17 percent of enrollees were 80 years or older;
- Minority enrollment was limited; participation rates exceeded 10 percent only in the Johns Hopkins and UCLA projects;
- In all five projects, women outnumbered men as they do generally in the elderly population;
- The Johns Hopkins enrollees were less likely to have living spouses than enrollees in other projects;
- About one-third of the enrollees in Johns Hopkins and UCLA lived alone, while a slightly lower percentage lived alone in the other sites;

---

[5] Estimates of demonstration effects based on the intent-to-treat model can be adjusted to account for use of preventive services with an instrumental variables technique (see Pindyck, R.S. and D. Rubinfeld; Econometric Models and Economic Forecast. New York: McGraw-Hill 1981). Unfortunately, this technique requires complete information on the use of preventive services by control subjects. These data are not available.

[6] Appendix A presents detailed baseline data on socio-demographic enrollee characteristics by project.

EXHIBIT 4-4

COBRA Medicare Prevention Demonstration Evaluation

Enrollee Socio-Demographic Characteristics
Baseline

Characteristic	All Sites		Johns Hopkins		Pittsburgh		UCLA		San Diego		Washington	
	Experimental (n = 7915)	Control (n = 6434)	Experimental (n = 2118)	Control (n = 2117)	Experimental (n = 2655)	Control (n = 1225)	Experimental (n = 973)	Control (n = 937)	Experimental (n = 899)	Control (n = 901)	Experimental (n = 1270)	Control (n = 1254)
Female	59.2%	59.8%	62.9%	63.3%	56.8%	56.7%	58.9%	57.1%	56.1%	54.9%	60.4%	62.1%
Average Age	72.5	72.9	73.9	74.0	70.9	71.0	73.5	73.1	72.6	72.9	72.7	72.9
Over 80 Years	8.3%	10.3%	16.4%	17.1%	0.2%	0.2%	11.4%	10.5%	6.4%	7.5%	10.6%	10.3%
Minority	5.9%	8.3%	12.4%	16.3%	0.0%	0.0%	12.7%	12.1%	4.7%	2.8%	3.0%	3.7%
Married	60.0%	60.6%	46.1%	45.5%	68.0%	69.7%	60.4%	60.6%	60.8%	62.3%	65.4%	63.7%
Lives Alone	30.3%	31.1%	33.3%	33.1%	25.6%	26.5%	34.7%	34.0%	33.8%	30.3%	29.1%	30.4%
Special Residence for Elderly	3.3%	3.6%	0.9%	2.0%	5.2%	6.2%	2.7%	3.0%	3.9%	4.1%	3.4%	3.9%
Some College Education	31.2%	33.4%	11.6%	10.0%	16.5%	16.2%	57.0%	55.7%	59.8%	59.3%	55.2%	54.4%
Completely Retired	73.5%	71.4%	69.7%	68.2%	83.6%	82.4%	63.5%	65.1%	68.6%	72.2%	69.2%	69.7%
Lowest Household Income[a]	12.8%	13.9%	33.4%	33.2%	6.1%	7.1%	2.0%	1.4%	1.6%	0.9%	2.4%	1.7%
Highest Household Income[b]	5.5%	6.0%	0.2%	0.2%	2.0%	1.3%	22.3%	23.7%	9.0%	8.0%	6.0%	6.3%
Usual Source of Care:												
Private Physician	68.8%	63.2%	98.1%	96.3%	95.4%	95.9%	94.7%	93.8%	0.0%	0.0%	0.0%	0.0%
HMO	27.6%	33.6%	0.0%	0.0%	0.2%	0.3%	0.0%	0.0%	100.0%	100.0%	100.0%	100.0%

Source: COBRA Medicare Prevention Demonstration MDS.

Note: Percentages are based on observations without missing values.

[a] For all projects except Johns Hopkins, "less than $5,000"; for Johns Hopkins, "less than $5,500."

[b] For Johns Hopkins and Washington, "$45,000 or more"; for San Diego, UCLA, and Pittsburgh, "$50,000 or more."

- The proportion of enrollees living in a special residence for elderly was highest (about 5-6 percent) in the Pittsburgh project and slightly lower (3-4 percent) in the West Coast projects (San Diego, UCLA, and Washington);

- Enrollment of college-educated participants was higher in the West Coast projects (San Diego, UCLA, and Washington) with over half of the enrollees having had some college education, compared to less than 20 percent in the east coast projects (Johns Hopkins and Pittsburgh);

- The percentage (slightly over 80 percent) of enrollees in Pittsburgh who reported being completely retired was higher than in the other projects (generally about 70 percent);

- Enrollment of low income beneficiaries was substantially greater (33 percent) in Johns Hopkins; enrollment of high income beneficiaries was substantially greater (20 percent) in UCLA; and

- Enrollees' usual source of care was project-specific, with beneficiaries citing their usual source of care as the participating HMO in the two HMO sites (San Diego and Washington) and private physicians in the fee-for-service sites.

The functional status of enrollees also varied among the demonstration projects, as shown in Exhibit 4-5.[7] Overall, by certain measures, the COBRA enrollees tended to be in better health than elderly surveyed in other studies that did not focus on prevention. The percentage of enrollees reporting Activities of Daily Living (ADL) or Institutional Activities of Daily Living (IADL) dependency was relatively low in both Pittsburgh and Washington.[8] Fewer than 9 percent of enrollees in Pittsburgh and Washington reported they were dependent in one or more ADLs (bathing, dressing, and transferring) or in one or more IADLs (shopping, travel, light housework, and cooking). While comparable to published norms for the community-based elderly, the percentage of enrollees reporting ADL dependency was slightly higher (9.5 percent) in Johns

[7]Appendix A presents detailed baseline data on enrollee functional status and risk factors by project.

[8] According to a 1982 survey in three cities, the percentage of community-based elderly who are ADL dependent ranges from 10-20 percent. Established Populations for Epidemiologic Studies of the Elderly, Resource Data Book, National Institute on Aging, National Institutes of Health (NIH) Publication No. 86-2443. Another study reports that approximately 14 percent of the elderly report IADL dependency. Proceedings of 1988 International Symposium on Data on Aging, Vital and Health Statistics, National Center for Health Statistics, August 1991.

Hopkins than other projects. Similarly, the percentage reporting IADL dependency was slightly higher (12 -14 percent) in UCLA compared to enrollees in other projects. Comparable information on the functional status of San Diego enrollees was unavailable.

The percentage of enrollees with some degree of bladder incontinence varied substantially among projects, ranging from 17 percent in San Diego to practically half of the enrollees in Washington.[9] This variation may have been due, in part, to the wording of the interview questions which varied by project.[10]

Between two-thirds and three-quarters of the enrollees claimed to have had at least one serious health condition (heart disease, stroke, diabetes, cancer, chronic lung disease, or arthritis). Johns Hopkins did not ask its respondents about these conditions. In all projects except UCLA, over half of the enrollees reported to have vision and/or hearing problems. However, only a quarter of the enrollees in UCLA claimed to have such problems.

There was also wide variation in the percentage of enrollees reporting that they had to cut down on their usual activities or were bedridden due to illness or injury in the year before the demonstration. About a quarter of the enrollees in Johns Hopkins and Pittsburgh claimed to have had at least 1 day in which they had to cut down on their usual activities; over 40 percent of the enrollees in UCLA experienced such disability days. Fewer than 4 percent of the enrollees in Johns Hopkins, San Diego, and Washington reported having been bedridden due to illness or injury. Considerably more enrollees in UCLA (47 percent) and Pittsburgh (15-19 percent) reported having been bedridden in the year before the demonstration, reflecting in part different time frames for recall between the projects.

---

[9] Published estimates of difficulty holding urine range from 32 to 50 percent. Established Populations for Epidemiologic Studies of the Elderly, Resource Data Book, National Institute on Aging, NIH Publication No. 86-2443.

[10] The interview questions in all projects except San Diego were rather specific, asking whether the enrollees ever experienced any leakage (rather than whether the enrollee had ever been treated for incontinence, as in San Diego).

Risk Factors

Overall, the frequency of risky health behaviors among COBRA enrollees generally mirrored patterns in the larger elderly population. For example, as shown in Exhibit 4-5, between 62 and 77 percent of COBRA enrollees in San Diego, UCLA, and Washington reported at the baseline interview that they drank alcohol, and fewer than 10 percent reported that they smoked cigarettes, frequencies that compare to epidemiological data published by the National Institute on Aging.[11]

The percentage of COBRA enrollees who experienced at least one hospitalization in the 1-year period prior to the demonstration ranged from 6 percent to 19 percent. In addition, the length of an average inpatient stay was lower in the two managed care projects (San Diego and Washington) than in the fee-for-service projects (Johns Hopkins, UCLA, and Pittsburgh). Lower managed care hospital utilization is also evident in the proportion of beneficiaries with two or more admissions in the year before the demonstration (fewer than 3 percent in San Diego, but 5 to 6 percent in Johns Hopkins, UCLA, and Pittsburgh).

In the U.S. as a whole, Medicare beneficiaries were hospitalized at a rate of 33,000 per 100,000 in 1989 and 1990. Pre-demonstration hospitalization rates among demonstration control subjects varied from 7,000 per 100,000 in San Diego to 26,000 per 100,000 in Johns Hopkins' Baltimore target area. During the year after baseline data collection, death rates within the demonstration averaged 2,556 per 100,000 and ranged from an estimated 911 per 100,000 in Washington to 4,910 per 100,000 in Johns Hopkins: among all Medicare beneficiaries, the 1989 death rate was 4,700 per 100,000.[12]

The relatively good health of demonstration enrollees posed three challenges to the evaluation:

- **Effects of preventive services may require considerable time to materialize.** The addition of 2 years of follow-up was expected to help alleviate this concern.

---

[11] Between 40-70 percent of the elderly studied in three cities reported drinking alcohol; and between 8-20 percent were current smokers. Established Populations for Epidemiologic Studies of the Elderly, Resource Data Book, National Institute on Aging, NIH Publication No. 86-2443.

[12]Hospitalization and death rate data were calculated from Medicare claims and eligibility files.

EXHIBIT 4-5
COBRA Medicare Prevention Demonstration Evaluation

Enrollee Functional and Risk Status
Baseline

	All Sites		Johns Hopkins		Pittsburgh		UCLA		San Diego		Washington	
Characteristic	Experimental (n=7915)	Control (n=6434)	Experimental (n=2118)	Control (n=2117)	Experimental (n=2655)	Control (n=1225)	Experimental (n=973)	Control (n=937)	Experimental (n=899)	Control (n=901)	Experimental (n=1270)	Control (n=1254)
Functional Status												
Dependent in 1 or More ADLs	5.8%	5.9%	9.5%	9.5%	2.8%	2.3%	7.0%	4.3%	-	-	4.9%	4.6%
Dependent in 1 or More IADLs	6.6%	6.5%	5.1%	4.4%	7.9%	8.0%	12.2%	14.8%	-	-	2.1%	2.2%
Incontinent	34.0%	34.0%	-	-	29.2%	27.5%	41.4%	43.7%	18.7%	17.8%	49.0%	46.6%
1 or More Health Conditions	74.8%	74.0%	-	-	78.0%	78.5%	76.1%	78.7%	72.3%	67.5%	68.8%	70.4%
Vision or Hearing Problem	58.1%	58.3%	63.1%	60.1%	57.6%	57.7%	26.4%	28.1%	78.7%	79.1%	60.8%	64.0%
1 or More Disability Days	30.2%	29.8%	25.0%	25.2%	26.8%	25.4%	52.1%	46.9%	-	-	-	-
1 or More Bed Days	12.3%	12.3%	2.6%	3.5%	15.9%	19.4%	47.5%	47.8%	0.9%	0.9%	1.8%	2.2%
Risk Factors												
Drinker	46.4%	62.7%	-	-	48.3%	46.6%	77.1%	77.1%	67.1%	68.6%	62.8%	63.2%
Smoker	11.4%	12.0%	15.5%	16.9%	12.4%	11.7%	7.2%	9.2%	7.1%	7.1%	8.5%	9.2%
In Good Health	42.3%	42.5%	48.2%	48.9%	-	-	38.0%	35.7%	83.6%	87.9%	43.5%	46.0%
Hospital Admission within Past 12 Months	14.2%	14.3%	17.0%	17.1%	13.7%	14.7%	19.0%	18.2%	6.2%	6.5%	10.9%	11.9%
Average LOS for those with at Least 1 Hospital Admission	9.4	9.8	12.7	12.7	8.2	9.5	9.6	8.0	6.1	5.9	5.8	6.7
2 or More Hospital Admissions within Past 12 Months	3.7%	4.0%	5.0%	5.7%	3.4%	4.7%	6.1%	4.7%	1.0%	0.6%	1.2%	2.4%

ource: COBRA Medicare Prevention Demonstration MDS.

lote: Percentages are based on observations without missing values.
- = Data not available.

- **Findings from the evaluation may not apply in less healthy populations.** Of course, if the young and/or healthy elderly prove to be the only users of a Medicare prevention benefit, this concern may not have practical significance. However, the beneficial effects of prevention in less healthy elderly individuals may exceed the effects observed in the demonstration.

- **If the potential users of a prevention benefit are generally healthy, a Medicare benefit may pay for screening and information that benefit users would have sought (and paid for, where necessary) on their own.** Under these conditions, the principal effect of a benefit in a fee-for-service environment might be to shift the costs of prevention from the private to the public sector, not to increase the total use of preventive services by elderly beneficiaries.[13]

The ideal data for assessing the potential for cost shifting under a prevention benefit would include evidence on the numbers and characteristics of Medicare beneficiaries who pay for preventive health care without the benefit, and how much they spend for prevention on average. However, these data are not available from Medicare claims or from baseline data collected by the COBRA demonstrations. For example, items from Johns Hopkins' baseline questionnaire show what percentage of subjects report having been screened in the past (Pap smear, mammogram). Other projects collected less detailed information regarding prior use of preventive services, concentrating instead on recalled acute episodes. Unfortunately, none of the COBRA data include self-reported pre-demonstration expenditures for preventive health services.

[13] For example, a recently-submitted report on the Medicare Influenza Vaccine Demonstration (Abt Associates, Inc., 1993) estimates the influenza vaccination rate among elderly beneficiaries without the benefit to be 30 percent; with a benefit that covers influenza vaccinations, and a hypothetical provider reimbursement rate of $4, a complete shift of the costs of vaccinating these beneficiaries would add $37.2 million without any new offsetting reductions in Medicare expenditures for the treatment of influenza-related illnesses.

5.0 EFFECTS OF THE DEMONSTRATION ON PREVENTION AND ACUTE CARE EXPENDITURES AND UTILIZATION

5.1 Overview

Disease prevention and health promotion services must avert some preventable sickness or death to be cost-effective. This chapter reviews evidence from the demonstration on the contribution of preventive services to reductions in Medicare-reimbursed health care services.

Two central research questions are addressed in this chapter. First, did those elderly beneficiaries who were offered preventive services through the demonstration use them? The five COBRA projects successfully recruited elderly Medicare beneficiaries into the prevention demonstration. Once in, however, how many in the experimental group actually followed up on referrals, visited physicians for screens and tests, and attended counseling sessions and classes?

Second, was the availability and use of preventive services through the demonstration associated with any effects on hospitalization rates, utilization of non-hospital services, and Medicare expenditures? For the fee-for-service projects (Johns Hopkins, UCLA, and Pittsburgh), Medicare claims data provided information on utilization and expenditures for hospital, SNF, HHA care and physician services. For the managed-care projects (Washington and San Diego), the internal data systems of cooperating managed care programs provided information on hospital and physician utilization.

5.2 Data Sources

Analyses of demonstration effects on utilization and expenditure were based on data from several sources:

- **Medicare waivered services claims files**: During the life of the demonstration, Medicare paid slightly over $1.9 million in claims for HRAs, clinical screens and health promotion services. Estimates of expenditures are based on demonstration claims data supplied by HCFA.

- **Medicare demonstration waivered services utilization data**: The COBRA projects provided data from visit encounter forms describing the numbers, dates of service, and types of waivered services used by experimental group members. Each project offered a different package, defined by visits (the maximum number of encounters with participating

health professionals) and services (the separate interventions -- screens, substance abuse counseling, diet workshops, depression counseling and others) that might be provided in one or more visits. For the analyses reported in this chapter, only three variables measure services utilization common to all projects. One variable indicated that a beneficiary received one or more waivered services (or visits), and two other variables indicated that the beneficiary did or did not use the maximum number of visits, or services, available.

- **MDS file variables**: Certain demographic and socioeconomic indicators from the MDS were used in the expenditure and utilization analyses: age, gender, race, education, income, living arrangement, marital status, smoker (yes/no), retirement status, hospitalization and hospitalization due to cancer, cardiovascular disease, hypertension, chronic ischemic heart disease, or chronic obstructive pulmonary disease prior to the demonstration. Values of these indicators were taken from the baseline surveys conducted by all the COBRA projects.

- **Utilization and expenditure data**: Medicare Part A and Part B claims files were used to construct measures of utilization and expenditures only for demonstration enrollees in the COBRA fee-for-service projects. Managed care programs that participate in Medicare are not required to submit claims to Medicare for services provided to enrolled beneficiaries. The two managed care programs provided measures of hospital utilization and office-based physician visits; it was decided that cost information maintained by these programs could not be compared to charge and reimbursement data from the regular Medicare claims. Therefore, no estimates of the dollar value of non-waivered services used by managed care enrollees were computed.[1] Medicare eligibility files were used to validate enrollee eligibility; to extract certain data elements, such as age and gender, used to verify MDS data; and to determine which fee-for-service enrollees participated in group health programs during the year before (the "Pre-Demonstration Year") and in the years after intake ("Year 1, Year 2, Year 3, Year 4").[2] These annual periods are specific to each individual enrollee, and are defined as 360-day periods before and after the beneficiary consented to participate in the demonstration.

---

[1] Medicare expenditures for beneficiaries enrolled in a managed care plan cover monthly capitation payments only, and are therefore not reflective of actual health care utilization patterns.

[2] In the UCLA files, Health Insurance Claim (HIC) numbers for 31 beneficiaries were determined to be wrong, comparing age, gender, and name against Medicare eligibility files. These individuals are not included in any of the analyses reported in this chapter.

Medicare claims and eligibility data: Medicare Part A and Part B claims from the Medicare Automated Data Retrieval System were used to construct utilization and expenditure measures for the COBRA fee-for-service projects.

The following Part A measures were estimated for each experimental and control subject for the year before and for 4 years after the demonstration began:

- Total Part A charges and reimbursements
- Total Part A charges and reimbursements per day alive
- Total inpatient charges and reimbursements, admissions, lengths of stay
- Total SNF charges, reimbursements, admissions, lengths of stay
- Total HHA charges, reimbursements, and visits

Part B measures were estimated for Years 3 and 4 of the demonstration.[3]

- Total Part B charges and reimbursements
- Total Part B charges and reimbursements per day alive
- Total Part B office-based physician charges, reimbursements, and visits

Estimates of each utilization and expenditure variable were computed for the users of each service. The percent of participants utilizing each service were also computed. In addition, Medicare claims were used to compute two measures of beneficiary risk status at entry into the demonstration: two or more hospitalizations during the year before the demonstration; one or more hospitalizations for at least one of the following conditions -- malignant cancer, heart condition/stroke, essential hypertension, or chronic obstructive pulmonary disease.

Managed care internal files: Group Health of Puget Sound (Washington) and Secure Horizons (San Diego) provided within-plan utilization data for demonstration participants. Only hospital admissions were dated; nursing home and home health utilization were not consistently

[3] Prior to 1991, HCFA maintained only a 5 percent sample of Part B records with the needed procedure code detail. Therefore, Part B data were not available for COBRA subjects in Years 1 and 2. Upon the implementation of the National Claims History File in 1991 (coinciding with Year 3 of the COBRA demonstration), HCFA began to maintain complete Parts A and B claims histories for all beneficiaries.

available for one of the managed care providers. Because the analysis called for measures of utilization in the 4 years after the beneficiary consented to participate, only hospital utilization and office-based physician visits could be allocated accurately to the study period. Therefore, the only measures of non-preventive service utilization for managed-care enrollees are numbers and lengths of hospital stays and numbers of office-based physician visits, in the year before and in each of the 4 years after intake. Utilization-based risk variables for the pre-demonstration period (two or more hospital admissions, hospitalization for specific chronic conditions) were also computed for the managed care participants.

5.3 Utilization of Demonstration Services

Recruitment and assignment to experimental group status did not ensure use of the intervention services. This section discusses the characteristics of the experimental subjects who received services and the type of services used.

Characteristics of Experimental Participants Receiving Services

As shown in Exhibit 5-1, a majority of experimental enrollees utilized at least one type of demonstration service. Across all projects, 83 percent of the experimental subjects received demonstration services. The percentage was lowest in Johns Hopkins where 63 percent received a preventive or counseling visit. This low percentage may be due to the fact that Johns Hopkins subjects were responsible for scheduling their own preventive and counseling visits, whereas in most other projects visit appointments were pre-scheduled by the providers.[4] Of special interest, almost all (97 percent) experimental subjects in San Diego participated in the clinical screenings or attended one of the eight health promotion workshops, even though San Diego also had the shortest time period during which demonstration services were provided (1.6 years). The other demonstration projects provided the intervention services over periods ranging from 1.7 years in Washington to 2.2 years in Johns Hopkins.

[4] Experimental enrollees assigned to the provider group in Pittsburgh were also responsible for scheduling their own appointments for intervention services. However, the Pittsburgh staff encouraged providers to perform outreach to those experimental subjects eligible for interventions. As a result, about 92 percent of both experimental groups in Pittsburgh received demonstration services.

EXHIBIT 5-1

COBRA Medicare Prevention Demonstration Evaluation

Utilization of Demonstration Services by Experimental Subjects

	All Projects (n = 7975)	Johns Hopkins (n = 2118)	Pittsburgh (n = 2655)	UCLA (n = 973)	San Diego (n = 899)	Washington (n = 1270)
Received No Demonstration Services	16.9%	37.4%	8.2%	19.8%	3.2%	8.4%
Received Demonstration Services	83.1%	62.6%	91.8%	80.2%	96.8%	91.6%
Demonstration Service Period	--	May 1989-July 1991	July 1989-April 1991	June 1989-April 1991	May 1989-November 1990	October 1989-May 1991

Source: COBRA Medicare Prevention Demonstration MDS.

In many respects, the experimental subjects who received services resembled those who did not. For example, the majority of both groups were under 80 years of age, married, were not of an ethnic minority, did not live alone, were completely retired, were functionally independent in ADLs and IADLs, and were bladder continent (see Exhibit 5-2).

On the other hand, certain characteristics were clearly associated with receipt of demonstration services. In particular, while there were more women than men participating in the demonstration overall, women were less likely to receive demonstration services (58 percent of service users were women compared to 64 percent of non-users).[5] College-educated enrollees were more likely than less-educated enrollees to have received demonstration services. With the exception of UCLA, most subjects reported having a vision or hearing problem; however, subjects with either of these two problems were less likely to receive services as well. Less than one-half of the experimental subjects reported themselves to be in good health; subjects perceiving themselves to be in good health were more likely to receive services.

Type of Demonstration Services Used

As described earlier in Chapter 4.0, all projects offered clinical screening and health promotion services. With the exception of Washington, the clinical screening component was the first service offered, followed by counseling or health promotion services. As shown in Exhibit 5-3, few experimental subjects received only counseling services. Close to 90 percent or more of the subjects in the two managed care projects (San Diego and Washington), as well as in UCLA (where services were also provided on a centralized basis) received both clinical screening and health promotion services.

In contrast, most of the experimental subjects (75 percent) in Pittsburgh received only clinical screening services. On the other hand, slightly less than half (49 percent) of the subjects in Johns Hopkins received only the first preventive clinical screening visit and did not pursue any

[5]Appendix B presents the characteristics of experimental subjects in each project who received demonstration services.

EXHIBIT 5-2

COBRA Medicare Prevention Demonstration Evaluation

Characteristics of Experimental Subjects by Receipt and Non-Receipt of Demonstration Services Across All Projects

	Did Not Receive Services (n=1337)	Received Services (n=6578)
Socio-Demographic		
Female	64.4%	58.1%**
Over 80 Years	16.6%	6.6%**
White	90.9%	94.6%**
Married	48.9%	62.3%**
Lives Alone	33.3%	29.7%**
Lives in Special Residence for Elderly	3.3%	3.3%
Some College Education	19.5%	33.6%**
Completely Retired	69.6%	74.2%**
Highest Income	3.9%	5.3%*
Functional Status		
Dependent in 1 or More ADLs	11.1%	4.6%**
Dependent in 1 or More IADLs	8.3%	6.2%
Incontinent	38.1%	33.5%*
1 or More Health Conditions	75.8%	74.7%
Vision or Hearing Problem	42.7%	41.7%*
1 or More Disability Days	31.1%	30.0%
1 or More Bed Days	13.3%	12.0%*
Risk Factors		
Drinker	55.2%	59.7%*
Smoker	15.0%	10.6%**
In Good Health	40.9%	42.7%

Source: COBRA Medicare Prevention Demonstration MDS.

Note: Percentages for each characteristic are based on observations without missing values for that characteristic.

* Differences between groups are significant at the .10 level.
** Differences between groups are significant at the .05 level.

followup counseling visits. The other 51 percent of the subjects in the Johns Hopkins project received both the clinical screening and counseling services.

Another measure captures experimental subjects' use of the maximum number of visits available under the demonstration. The maximum numbers of visits vary among the projects (see Exhibit 5-3):

- Over the 2-year demonstration service period, Johns Hopkins subjects were eligible to receive a total of four visits (two preventive and two counseling visits). Among those who received services, subjects scheduled on average 2.8 visits, representing nearly three-quarters of the maximum number of visits available.

- Over the 1-year and 5-month demonstration service period, San Diego subjects were eligible to receive two clinical screening visits and two visits for immunizations, and to attend eight health promotion workshops. On average, subjects in San Diego attended 7.6 of these visits/workshops, representing close to two-thirds (63 percent) of the maximum number of visits available.

- Over an approximately 2-year demonstration service period, the intervention in UCLA was provided centrally during three separate one-day Screening and Health Promotion Clinics. On average, subjects attended two of the three clinics, representing about 70 percent of the maximum number of visits.

- Over the 1.8-year demonstration service period, nine different types of demonstration services, recommended on the basis of evidence from screenings, were available to subjects in Pittsburgh, each of which included one or more visits.[6] A subject receiving the full range of demonstration services (i.e., subjects with the risk factors to be eligible for all 40 visits)[7] would have attended 40 visits. However, the average number of visits among Pittsburgh subjects was slightly over three, in part due to the fact that only a quarter of the Pittsburgh subjects received both clinical and health promotion visits.

---

[6] The Pittsburgh intervention included the following types of services: nutrition (5 visits); weight control (16 visits); diabetes mellitus (1 visit); dementia/depression evaluation (2 visits); smoking cessation (8 visits); alcohol counseling (5 visits); annual influenza immunizations (2 visits); clinical screening (1 visit).

[7] The mean number of visits for which Pittsburgh subjects were eligible is 3.4.

EXHIBIT 5-3

COBRA Medicare Prevention Demonstration Evaluation

Types of Demonstration Services Received

Demonstration Services	All Projects (n = 6578)	Johns Hopkins (n = 1327)	Pittsburgh (n = 2438)	UCLA (n = 780)	San Diego (n = 870)	Washington (n = 1163)
Type of Service						
Clinical Only	39.5%	48.8%	75.0%	2.7%	10.6%	1.0%
Counseling Only	*	0.7%	0.0%	0.5%	0.1%	0.0%
Clinical and Counseling	60.2%	50.6%	25.0%	96.8%	89.3%	99.0%
Visits						
Maximum Number of Visits	-	4.0	40.0	3.0	12.0	6.0
Average Number of Visits	4.0	2.8	3.4	2.1	7.6	5.6
Average Number of Visits with a Physician[a]	1.1	2.8	1.1	2.1	1.0	1.9
Place of Service						
Physician Office	34.6%	97.9%	40.2%	0.0%	0.0%	0.0%
Hospital	18.5%	2.0%	48.9%	0.0%	0.0%	0.0%
HMO/Clinic	30.9%	0.0%	0.0%	100.0%	10.6%	100.0%
Other	*	0.0%	0.0%	0.0%	0.1%	0.0%
Combination	15.9%	0.2%	10.9%	0.0%	89.3%	0.0%

Source: COBRA Medicare Prevention Demonstration MDS.

* Less than 1 percent.

[a] Includes dentist at UCLA.

- Over the 1.7-year demonstration service period, Washington subjects could have been scheduled for five visits: in the first year a health promotion visit with a nurse and one disease prevention visit. (If a visit with both a nurse and a physician could not be scheduled on the same day, 2 separate visits were arranged); and in the second year, a health promotion visit with a nurse, a disease prevention visit with a physician, and a prescription use review visit with a registered pharmacist. In fact, subjects averaged 5.6 visits.

Use of physicians to deliver demonstration services varied among the projects. All visits in Johns Hopkins were reported to be with physicians; however, only one type of demonstration service was conducted by a physician in the remaining four projects.[8] As a result, as shown in Exhibit 5-3, experimental subjects were seen by a physician, on average, only once over the approximately 2-year period.

The location of preventive service visits was also project-specific (see Exhibit 5-3) and was associated with the design of the intervention package. For example, many services were provided at HMO facilities in the two managed-care projects. All health promotion and disease prevention visits in Washington were provided at the GHC HMO clinics. While all clinical screening visits were performed at the Sharp Rees-Stealy Group Practice facilities in San Diego, the eight health promotion workshops were held in the community in a variety of settings (e.g., senior centers, community halls, etc.). Close to 90 percent of the San Diego experimental subjects received demonstration services at both the HMO and in these community settings.

There was variation in the place of service among the three fee-for-service sites. As mentioned above, UCLA held three 1-day Screening and Health Promotion Clinics on the UCLA campus during which subjects received demonstration services. Almost all (98 percent) of the demonstration services were provided in physicians' offices in Johns Hopkins. The Pittsburgh design required that the clinical screening be performed by the provider group (physician or hospital) to which the experimental subject was randomized.[9] Subjects in the physician-based experimental group

---

[8] The clinical screening was conducted by a physician in San Diego and Pittsburgh. The dental screen was performed by a dentist in UCLA, and two of the three disease prevention visits were conducted by a physician in Washington.

[9] Recall that Pittsburgh had two types of experimental groups: 1) participants assigned to physicians and 2) participants assigned to hospitals.

could receive health promotion services from the physician, or be referred to a local participating hospital for these services. As shown in Exhibit 5-3, almost half (49 percent) of the experimental subjects in Pittsburgh received demonstration services from participating hospitals; another 40 percent received services solely from physicians.

The above discussion describes utilization of general service categories of clinical and counseling services. However, it is also interesting to identify the demonstration services received by experimental subjects (participants randomly selected to receive the full range of demonstration services). As shown in Exhibit 5-4, these demonstration services were project-specific[10]:

- Almost all (99 percent) subjects in Johns Hopkins scheduled and attended prevention visits.

- Almost all (99 percent) subjects in San Diego received the clinical screenings. In addition, between 60 and 80 percent of subjects attended each of the eight health promotion workshops held in the community. However, less than one-third of subjects received annual influenza immunizations.

- Ninety-eight percent of the subjects in UCLA received the clinical screening at the Screening and Health Promotion Clinics. In addition, almost all subjects were screened for dental health and hearing. Most also attended mini-counseling sessions on lifestyle and social relations, diet and nutrition, dental health, exercise and fitness, home safety, and smoking cessation. Eight-eight percent of subjects were examined for gait and balance, and 86 percent received some physical or occupational therapy instruction. Approximately half of the subjects received some social work services.

- All experimental subjects in Pittsburgh were offered clinical screening. However, with the exception of the influenza immunization in the first year, participation in the other eight interventions was relatively low, ranging from 17 percent of at-risk subjects receiving smoking cessation classes to 45 percent receiving nutrition guidance and instruction. In contrast, about two-thirds (66 percent) of the subjects received an influenza immunization in the first year.

- While most experimental subjects attended all six visits in Washington, there was a wide range of topics which were addressed in these visits. Almost all of the subjects discussed with their provider the importance of exercise and

[10] Percentages are based on the number of experimental participants who received demonstration services.

COBRA Medicare Prevention Demonstration Evaluation

Utilization of Project-Specific Demonstration Services[a]

JOHNS HOPKINS	PITTSBURGH[c]	UCLA	SAN DIEGO	WASHINGTON
Prevention Visits (99%)	Screening (100%)	Oral Examination and Cancer Screening (99%)	Clinical Screening (99%)	Exercise (98%)
Counseling Visits (51%)	Nutrition (45%)	Gait (88%)	Memory Workshop (81%)	Breast Screening (86.2%)
	Weight (41%)	Hearing Screen (99%)	Mental Alertness Workshop (70%)	Nutrition (96%)
	Diabetes (26%)	Counseling (98%)	Loss of Life Workshop (66%)	Planning Ahead (93%)
	Depression (36%)	Clinical Screen (98%)	Wellness Workshop (65%)	Hypertension (77%)
	Smoking (17%)	Physical Therapy/ Occupational Therapy (86%)[b]	Choices for Living Workshop (63%)	Medications (87%)
	Alcohol (25%)	Social Work (51%)[b]	Minor Ailments Workshop (63%)	Home Safety (87%)
	Influenza immunization (66%) Year 1		Selfcare/Relaxation/Nutrition/ Exercise Workshop (61%)	Hearing (71%)
	Influenza immunization (35%) Year 2		Footcare/Sunscreen/Walking Workshop (60%)	Vision (63%)
			Influenza immunization Year 1 (27%)	Sleep Problems (52%)
			Influenza immunization Year 2 (34%)	Incontinence (40%)
				Seatbelt Use (19%)
				Stress (44%)
				Alcohol (28%)
				Depression (32%)
				Smoking (20%)
				DPT (0)
				Influenza immunization (6%)
				Pneumococcal immunization (4%)

Source: COBRA Medicare Prevention Demonstration MDS.

[a]Percentages are based on the number of experimental participants receiving intervention services.

[b]Based on need identified in pre-screening.

[c]Percentages are based on those screened and determined eligible for each intervention.

nutrition. Other topics of key interest included breast cancer screening (women only), home safety, medication use, and planning for the future. Six percent or less of participants received influenza or pneumococcal immunizations.[11]

5.4 Net Total Medicare Expenditures During the First Year

HCFA expended slightly over $1.9 million dollars in providing HRAs and screening and health promotion services during the demonstration (see Exhibit 5-5). The Pittsburgh project incurred the highest expenditures ($501,000), in part due to their large number of experimental participants.

Average expenditures on prevention services per experimental subject by each project reflect the number of subjects enrolled, utilization rates for demonstration services, and reimbursement rates. As shown in Exhibit 5-5, expenditures for demonstration services per experimental subject across all projects averaged $227. Pittsburgh had the lowest average expenditure per beneficiary, about $159, primarily reflecting the large number of experimental subjects and a relatively low rate of utilization of demonstration services.
Washington had the highest average expenditure per beneficiary, about $306, reflecting both a relatively high number of experimental subjects and a high rate of utilization of demonstration services.

Across all projects, total expenditures on demonstration services accounted for slightly over three-quarters (77 percent) of the total expenditures. However, the proportion allocated to demonstration services varied among projects, ranging from 90 percent in Johns Hopkins to 54 percent in UCLA.

5.5 Effects of the Demonstration on Medicare Expenditures and Utilization

This section examines the levels and trends of utilization and expenditures for non-waivered Medicare services during the 4 years after the demonstration. In general, access to free

[11] Influenza vaccination rates among the elderly are considerably higher (usually about 30%). According to the two followup surveys, approximately 80 percent of experimental respondents reported having had an influenza shot within the past year. Clearly, the Washington enrollees received these vaccinations during non-intervention service visits.

EXHIBIT 5-5

COBRA Medicare Prevention Demonstration Evaluation

Aggregate Expenditures for Waivered Services

Waivered Services	All Projects	Johns Hopkins	Pittsburgh	UCLA	San Diego	Washington
HRAs[a]						
Total Expenditures	$381,156	$37,620	$115,301	$120,275	$61,835	$46,126
Demonstration Services: Screening and Health Promotion						
Total Expenditures[b]	$1,489,982	$321,724	$358,826	$210,449	$217,765	$354,217
Expenditures/Beneficiary[c]	$227.37	$243.36	$158.78	$270.85	$251.75	$305.62
All Waivered Services						
Total Expenditures	$1,927,405	$359,486	$501,127	$386,849[d]	$279,600	$400,342
Demonstration Services as Percent of Total Waivered Services	77%	90%	72%	54%[e]	78%	89%

Source: COBRA Medicare Prevention Demonstration Waivered Services Claims File.

[a] HRAs were reimbursed for experimental subjects in all projects and for control subjects in the following three projects: San Diego, UCLA, and University of Pittsburgh.
[b] Includes experimental subjects only.
[c] Based on all experimental subjects, regardless of receipt of intervention services.
[d] Includes expenditures for demonstration services to control subjects.
[e] Includes experimental only.

preventive services was expected to be associated with no change or a slight increase in the utilization and expenditures of Medicare services in the initial years of the demonstration. However, in the long-run, the availability of preventive services was expected to be negatively associated with utilization and expenditures of non-waivered services. In analyses of Year 1 results presented in the interim Report to Congress, experimental status was not associated with the rate of hospitalization and hospital expenditures. However, those experimental subjects not using the demonstration services were significantly more likely than users to have had a hospitalization and longer hospital stays, due to their lower levels of health. This section extends the analysis to investigate whether in later years, as experimental subjects were able to effect behavior changes and as medical conditions were diagnosed and treated in earlier stages of the disease, the availability of preventive services was associated with lower levels of expenditures and utilization of non-preventive services.

If the hypothesized demonstration effects on hospitalization rates among experimental subjects occurred, utilization of post-hospital institutional and home services should mirror these effects. Among the fee-for-service project enrollees, Medicare SNF and HHA expenditures and utilization were expected to be unchanged or slightly higher for experimental subjects than for control subjects in the early years. Over time, however, expenditures and utilization rates were expected to be lower for experimental subjects than for control subjects.

The discussion that follows begins by setting out the approach and methods of the analysis. Inpatient admissions and reimbursement analyses are presented first and are followed by analyses of post-hospital institutional care and home health services. Analyses of Part B physician services and a discussion of results concludes this section.

Analytical Approach

The analyses presented in this section are based on data pooled across all five COBRA projects. Pooled analyses allow an overall evaluation of the impacts of the demonstration. However, the demonstration was not structured to test a fixed set of benefits or a specific delivery system; the projects represent five variants of the demonstration. Project level analysis, therefore, allows a clearer determination of those variants of the demonstration that had expected effects.

Simple comparisons of unadjusted average measures of utilization and costs between control and experimental groups comprise the analysis. Enrollees were randomly assigned to either group so that control and experimental subjects were similar at baseline in all aspects except for the availability of the demonstration services. As described in Chapter 4, randomization was generally effective at the project level in generating similar frequencies of demographic and other characteristics in the experimental and control groups. A comparison of unadjusted averages then measures the impact of the demonstration. The data presented in the exhibits show 4-year trends in utilization and expenditures among control subjects and unadjusted estimates of effects in each year, measured as the difference in experimental and control group averages.

Differential mortality between experimental and control groups may complicate estimates of demonstration effects. However, analyses of pooled and project-specific data suggest that differential mortality is not a serious threat to estimates of expenditures and utilization effects.

Acute care utilization and reimbursement were tracked for 4 years after intake. Yearly comparisons of use and reimbursements track changes over the 4 years. Over this time period, 1,757 (12.3 percent) enrollees died. Approximately 54 percent of all deaths were among the experimental subjects. Exhibit 5-6 shows attrition by death across the five sites. Johns Hopkins, with an older study sample, experienced the highest death rates, and San Diego, with relatively young enrollees, had the lowest. When pooled across the five sites, the incidence of mortality was not statistically associated with experimental status. At two of the sites (Johns Hopkins and San Diego), however, significant differences in the incidence of mortality between experimental subjects and control subjects were observed. At the Johns Hopkins site, the mortality rate among the control subjects was 2.8 percentage points greater than the rate among the experimental subjects ($p<.05$). At San Diego, the experimental subjects had a greater incidence of mortality, a difference of 2.6 percentage points ($p<.05$).

Estimates of demonstration effects were based on comparisons of all experimental subjects to all control subjects, irrespective of experimental subjects' use of demonstration services. As noted in Chapter 4.0, no unbiased estimate of the effects of using demonstration services could be computed from the COBRA demonstration data. Roughly 80 percent of experimental subjects utilized one or more of the preventive services available through the demonstration. Exhibit 5-7 shows that over 85

EXHIBIT 5-6

COBRA Medicare Prevention Demonstration Evaluation

Attrition by Death
Status at the End of Year 4

	Percent Lost to Death by End of Year 4		
	Experimental (E)	**Controls (C)**	**E-C (Percentage Points)**
All Projects	12.0% (7,900)	12.6% (6,419)	-0.6
Johns Hopkins	18.7 (2,118)	21.5 (2,117)	**-2.8****
Pittsburgh	9.3 (2,655)	8.8 (1,225)	-0.5
UCLA	12.1 (973)	11.6 (937)	0.5
San Diego	8.6 (899)	6.0 (901)	**2.6****
Washington	8.8 (1,255)	6.8 (1,237)	**2.0***

Source: COBRA Medicare Prevention Demonstration MDS.

Note: Numbers of beneficiaries in parentheses.

* Difference significant at .10 level.
** Difference significant at .05 level.

EXHIBIT 5-7

COBRA Medicare Prevention Demonstration Evaluation

Percent of Experimental Subjects Using Demonstration Services by Status at the End of Year 4

Status at End of Year 4	All Projects	Johns Hopkins	Pittsburgh	UCLA	San Diego	Washington
Survived through Year 4	85.3% (6,953)	64.8% (1,722)	93.2% (2,409)	82.7% (842)	96.6% (822)	93.1% (1,158)
Died	67.7% (947)	53.3% (396)	78.9% (246)	64.7% (116)	98.7% (77)	75.9% (112)

Source: COBRA Medicare Prevention Demonstration MDS Files.

Note: Numbers of beneficiaries in parentheses.

percent of experimental subjects who survived through 4 years after intake used at least some of the demonstration services. In contrast, only 68 percent of the experimental subjects who had died by the end of the fourth year used preventive services. Section 5.3 showed that the experimental subjects who used preventive services were younger, more educated, predominantly male, and less likely to be a current smoker compared to the relatively small number of experimental subjects who did not use the demonstration services. The experimental subjects in managed care projects were more likely to use demonstration services than fee-for-service experimental subjects. Preventive services utilization rates were highest in San Diego, a managed care project that recruited relatively young, highly educated, wealthy enrollees, lowest for Johns Hopkins, with an older, less educated, lower income population served through physicians in a variety of practice settings.

Utilization of Total Part A and Hospital Inpatient Services

The utilization and expenditure differences displayed in the following exhibits of unadjusted averages incorporate behavior of demonstration service users and a small group of non-users of the demonstration services.[12] Obviously the inclusion of the non-users among the experimental subjects attenuates the measurement of demonstration effects. In general, throughout this analysis we are testing, in effect, the influence of the *availability* of demonstration services, not the use of the services.

The exhibits that present findings in this section, as well as succeeding sections report both pooled and project specific results. In addition, evidence on trends in those measures is shown for control group subjects. Estimated effects are captured in the differences between experimental and control subjects (E-C) in each year of the demonstration.

Exhibits 5-8 and 5-9 show that simple comparisons of unadjusted average incidence and amount of Part A reimbursements, inpatient admissions, days per admission, and reimbursements between control and experimental groups imply that the availability of the demonstration services

[12]In the UCLA site, controls were offered the demonstration services in March and April of 1991. Approximately half of the controls accepted the offer. For UCLA, the average utilization and expenditure differences in Years 2 through 4 measure the behavior of all experimental and control participants, regardless of whether or not they used the services offered.

EXHIBIT 5-8

COBRA Medicare Prevention Demonstration Evaluation

Fee-for-Service Projects
Medicare Part A Reimbursements[a] in Years 1-4

		Percent with Any Part A Reimbursement		Given Any Part A Reimbursement			
				Reimbursements		Reimbursement Per Day Alive	
Project	Year	Control	E-C[b] (Percentage Points)	Control	E-C[b]	Control	E-C[b]
All Project	1	22.1%	-1.0	$12,958	$180	$46.01	$1.46
	2	22.9%	0.7	$12,067	$564	$42.45	$0.59
	3	25.7%	-0.1	$12,587	-$583	$48.83	**-$6.57***
	4	26.5%	**-1.9****	$13,228	-$1,073	$49.15	-$4.45
Johns Hopkins	1	24.0%	-1.4	$13,236	$1,170	$52.39	-$1.53
	2	24.5%	-1.7	$12,755	$666	$43.89	$4.95
	3	25.8%	-1.2	$12,933	-$283	$54.10	**-$10.00***
	4	27.1%	-1.0	$13,116	$603	$51.10	$0.56
Pittsburgh	1	19.5%	0.7	$12,389	-$1,487	$37.51	$4.25
	2	21.3%	**3.2****	$9,966	$1,452	$34.57	$1.65
	3	26.8%	0.4	$10,790	-$451	$37.79	-$1.96
	4	25.7%	-1.4	$11,127	-$390	$37.14	$2.93
UCLA	1	21.3%	-1.0	$12,930	$3,241	$39.84	**$15.01***
	2	21.7%	0.8	$13,107	$1,474	$49.21	$1.78
	3	24.1%	-0.8	$14,472	$1,556	$53.15	$6.13
	4	26.3%	**-3.6***	$16,255	-$3,566	$60.82	-$18.85*

Source: COBRA Medicare Prevention Demonstration Expenditure and Utilization Files.

Notes:
[a] All expenditures in 1992 dollars
[b] Difference between Experimentals and Controls
* Difference significant at .10 level
** Difference significant at .05 level

EXHIBIT 5-9

COBRA Medicare Prevention Demonstration Evaluation

Medicare Part A: Inpatient
Expenditures[a] and Utilization in Years 1-4

		Percent with Any Inpatient Admission		Given An Inpatient Admission					
				Reimbursements		Admissions Per Year		Days Per Admission	
Project	Year	Controls	E-C[b] (Percentage Points)	Controls	E-C[b]	Controls	E-C[b]	Controls	E-C[b]
ll Projects	1	18.0%	-0.2	$12,234	$296	1.48	**0.07***	11.28	0.58
	2	18.0%	**1.2***	$11,212	$712	1.53	**0.07***	11.03	0.44
	3	19.8%	0.2	$11,525	-$98	1.57	-0.01	11.02	-0.41
	4	21.4%	-0.6	$12,665	-$1,030	1.61	-0.01	11.44	-0.89
hns Hopkins	1	22.9%	-1.7	$12,827	$999	1.52	**0.12***	14.99	2.27
	2	22.9%	-1.7	$11,866	$1,017	1.63	-0.02	15.07	0.03
	3	24.3%	-1.2	$11,925	-$193	1.64	-0.07	14.05	-0.56
	4	25.3%	-1.2	$12,628	$396	1.69	0.01	14.20	-0.02
ittsburgh	1	17.8%	1.0	$11,775	-$1,251	1.71	-0.14	12.09	-1.54
	2	19.4%	**3.0****	$9,424	**$1,434***	1.48	**0.22*****	9.64	**1.56***
	3	22.9%	0.5	$10,636	-$714	1.60	-0.04	11.00	-1.10
	4	20.5%	0.0	$11,280	-$1,021	1.72	-0.11	11.00	-0.87
CLA	1	20.3%	-0.4	$11,207	$3,489	1.39	**0.16***	8.73	**2.08***
	2	20.3%	1.6	$11,861	$1,089	1.59	-0.05	10.03	0.81
	3	23.4%	-2.6	$11,798	**$3,684****	1.58	0.07	10.32	1.78
	4	24.4%	**-4.9****	$14,310	-$2,185	1.51	0.10	10.33	-0.80

Project	Year	Percent with Any Inpatient Admission		Given An Inpatient Admission					
				Reimbursements		Admissions Per Year		Days Per Admission	
		Controls	E-C[b] (Percentage Points)	Controls	E-C[b]	Controls	E-C[b]	Controls	E-C[b]
San Diego	1	9.7%	1.4			1.34	0.00	6.18	-0.16
	2	8.4%	1.7			1.32	-0.01	4.90	1.10
	3	7.7%	2.0	n/a	n/a	1.40	0.02	5.97	-0.26
	4	n/a[c] %				n/a[c]	n/a[c]	n/a[c]	n/a[c]
Washington	1	14.5%	-0.8			1.23	**0.16****	5.48	0.65
	2	14.2%	-0.4	n/a	n/a	1.37	0.05	6.03	0.88
	3	16.0%	-1.5			1.42	0.09	6.60	-0.05
	4	14.2%	**3.0****			1.38	-0.06	6.15	**-1.56*****

Source: COBRA Medicare Prevention Demonstration Expenditure and Utilization Files.

Notes: [a] All expenditures in 1992 dollars

[b] Difference between experimental and control subjects

[c] In San Diego, Year 4 inpatient information was incomplete.

* Difference significant at .10 level

** Difference significant at .05 level

*** Difference significant at .01 level

generated few statistically significant effects in the 4 years after the start of the demonstration.[13] The differences between experimental and control subjects do not form a consistent pattern to suggest that the demonstration generated either greater relative utilization among experimental subjects in the initial years or lower relative utilization in the later years. When all projects were considered together, differences between experimental and control subjects in Years 3 and 4 were not statistically significant.

Exhibit 5-8 shows that, across the three fee-for-service projects, experimental subjects were no more likely to have a Part A reimbursement, or greater reimbursements given any Part A reimbursement, during the first 3 years. The percentage of all enrollees who incurred a Part A reimbursement increased over the 4 years. By Year 4, 24.6 percent of experimental subjects had a Part A reimbursement compared to 26.5 percent of control subjects ($p<.05$). However, the level of reimbursements among enrollees with any Part A reimbursement were similar between experimental and control subjects.

The project-level analyses showed that the incidence and size of Part A reimbursements were similar across experimental and control subjects in Year 1. In Year 2 experimental subjects at Pittsburgh were more likely to have a Part A reimbursement, but the level of reimbursements was similar across experimental and control subjects who had any Part A reimbursement. At all projects the percentage of enrollees with a Part A reimbursement increased over the 4 years; however, differences between experimental and control subjects in the incidence and level of reimbursements in the later years were never statistically significant at the project-level.

Exhibit 5-9 shows that, across all five projects, inpatient utilization and reimbursement never differed significantly between experimental and control subjects during the 4 years after intake. Experimental subjects were no less likely to have an inpatient admission than control subjects. Among users of inpatient services the number of admissions, length of stay, and reimbursements were similar across experimental and control subjects in all 4 years.

The project-level analysis revealed that, in Year 2, experimental subjects at Pittsburgh were more likely to have an inpatient admission, 22.4 percent compared to 19.4 percent of control

[13]All expenditures are measured in 1992 dollars.

subjects ($p<.05$), and given at least one admission to have more admissions ($p<.01$). In the UCLA project, experimental subjects were less likely to have an inpatient admission, but among those with at least one admission, the intensity and costs of the services were less than, but similar to, those used by control subjects. Experimental subjects at Washington had a significantly higher incidence of an inpatient admission ($p<.05$), but shorter hospital stays, 4.6 days compared to 6.2 days among control subjects ($p<.01$).

Utilization of SNF and HHA Services

Exhibits 5-10 and 5-11 show that utilization of Medicare Part A-reimbursed SNF or HHA services in the fee-for-service projects generally was not associated with experimental status.[14] In the initial years, utilization and reimbursements for these services were, in general, not significantly different between experimental and control subjects. By Year 4, only experimental subjects at UCLA had utilization levels and reimbursements for SNF services that were significantly lower than those of control subjects.

Exhibit 5-10 presents data to show 4-year trends in utilization and expenditures of SNF services at the fee-for-service projects. Across the three fee-for-service projects, the use of SNF services grew over the 4 years. In Year 1, 0.9 and 1.0 percent of control and experimental subjects respectively used SNF services. By Year 4, these percentages had grown to 2.3 and 2.0 percent. Statistical differences in use and reimbursements were not evident at any time, except in Year 4 when SNF reimbursements for experimental subjects were $1,385 less than for control subjects ($p<.05$).

At the project-level, few additional significant differences were apparent. For Years 1 and 2, the frequency and expenditures for SNF services showed no statistically significant differences between experimental and control subjects at any project. In Year 3, SNF stays were significantly longer (20.5 days, $p<.05$) among experimental subjects at Johns Hopkins. In Year 4, only experimental subjects at UCLA showed statistically significant differences in the use and costs of SNF services. Approximately 2 percent of UCLA experimental subjects used SNF services compared to 3.8 percent of control subjects, and among users of SNF services, experimental subjects had shorter

[14]Managed care project data on nursing home and home health care utilization were not available for this report.

EXHIBIT 5-10

COBRA Medicare Prevention Demonstration Evaluation

Fee-for-Service Projects
Medicare Part A: Skilled Nursing Facility (SNF)
Expenditures[a] and Utilization in Years 1-4

		Given Any Skilled Nursing Facility Admission							
		Percent with a SNF Admission		Number of Admissions		Days Per Admission		Reimbursements	
Project	Year	Control	E-C[b] (Percentage Points)	Control	E-C[b]	Control	E-C[b]	Control	E-C[b]
All Fee-For-Service Projects	1	0.9%	0.1	1.28	-0.09	35.83	-7.85	$5,272	-$1,599
	2	1.4%	0.2	1.30	-0.02	35.49	-5.38	$4,766	-$845
	3	2.1%	0.1	1.33	-0.06	27.95	2.28	$4,535	-$296
	4	2.3%	-0.3	1.40	-0.04	34.46	-3.88	$5,368	**-$1,385****
Johns Hopkins	1	0.7%	-0.1	1.47	0.00	44.20	2.33	$3,526	$1,415
	2	1.1%	-0.1	1.38	-0.05	55.38	-14.86	$5,071	**-$1,660***
	3	1.4%	0.1	1.31	0.03	31.54	**20.53****	$3,495	$724
	4	1.6%	0.3	1.24	0.05	38.69	-1.87	$3,101	-$123
Pittsburgh	1	0.9%	0.0	1.27	-0.19	37.82	-14.74	$5,336	-$2,472
	2	1.4%	0.3	1.12	**0.27***	24.00	7.82	$3,500	$272
	3	2.3%	0.1	1.19	0.02	24.93	0.63	$3,760	$368
	4	2.3%	-0.2	1.46	-0.05	32.00	-0.16	$4,350	$222
UCLA	1	1.5%	0.2	1.07	-0.01	25.29	-9.66	$7,092	-$3,554
	2	2.1%	0.5	1.37	**-0.33***	23.79	-5.91	$5,562	-$920
	3	3.5%	-0.3	1.48	-0.17	27.58	-9.37	$6,083	-$1,588
	4	3.8%	**-1.7****	1.50	-0.17	32.63	**-17.41****	$8,249	**-$4,040****

Source: COBRA Medicare Prevention Demonstration Expenditure and Utilization Files.
Notes: [a] All expenditures in 1992 dollars
[b] Difference between experimental and control subjects
* Difference significant at .10 level
** Difference significant at .05 level

COBRA Medicare Prevention Demonstration Evaluation

Fee-for-Service Projects
Medicare Part A: HHA Services
Expenditures[a] and Utilization in Years 1-4

				Given Any HHA Visit			
		Percent with Any HHA Visit		Number of Visits		Reimbursements	
Project	Year	Control	E-C[b] (Percentage Points)	Control	E-C[b]	Control	E-C[b]
All Fee-For-Service Projects	1	6.8%	-0.1	24.45	0.65	$1,806	-$15
	2	8.5%	0.6	30.89	-0.27	$2,163	-$96
	3	10.5%	0.5	34.62	-2.81	$2,329	-$263
	4	11.4%	-0.2	36.01	1.01	$2,467	-$1
Johns Hopkins	1	7.1%	-0.3	26.83	-0.26	$2,028	-$148
	2	8.7%	-1.2	34.65	-3.58	$2,457	-$96
	3	9.4%	-0.2	39.66	-2.89	$2,644	-$191
	4	9.8%	-0.5	36.00	11.43	$2,495	$728
Pittsburgh	1	7.3%	-0.1	24.42	1.23	$1,593	$139
	2	10.0%	1.0	30.16	1.46	$1,877	$111
	3	13.9%	-0.7	29.26	0.69	$1,783	-$17
	4	15.4%	-2.0	35.00	-1.36	$2,183	-$122
UCLA	1	5.2%	0.2	17.02	1.98	$1,505	$254
	2	5.8%	1.3	20.02	0.79	$1,867	-$89
	3	8.0%	0.4	34.34	-5.84	$2,805	-$314
	4	9.3%	-0.2	38.28	-9.60	$3,035	-$511

Source: COBRA Medicare Prevention Demonstration Expenditure and Utilization Files.
Notes: [a] All expenditures in 1992 dollars
[b] No statistically significant differences between experimental and control subjects

stays and lower reimbursements ($p<.05$ respectively). Trends in the differences between experimental and control subjects at Pittsburgh and UCLA weakly suggest that in the future experimental subjects at these sites might be expected to have significantly lower SNF utilization rates and reimbursements.

At the project-level, few additional significant differences were apparent. For Years 1 and 2, the frequency and expenditures for SNF services showed no statistically significant differences between experimental and control subjects at any project. In Year 3, SNF stays were significantly longer (20.5 days, $p<.05$) among experimental subjects at Johns Hopkins. In Year 4, only experimental subjects at UCLA showed statistically significant differences in the use and costs of SNF services. Approximately 2 percent of UCLA experimental subjects used SNF services compared to 3.8 percent of control subjects, and among users of SNF services, experimental subjects had shorter stays and lower reimbursements ($p<.05$ respectively). Trends in the differences between experimental and control subjects at Pittsburgh and UCLA weakly suggest that in the future experimental subjects at these sites might be expected to have significantly lower SNF utilization rates and reimbursements.

Exhibit 5-11 similarly presents data to show 4-year trends in utilization and expenditures of HHA services at the fee-for-service projects. Across the three projects, the percentage of enrollees who used HHA services steadily climbed from 6.8 and 6.7 percent of control and experimental subjects in Year 1 to 11.4 and 11.2 percent respectively in Year 4. Overall and at each project no association was found over the 4 years between experimental status and HHA utilization and reimbursements. Similar to trends found in utilization and reimbursement of SNF services, the differences only weakly suggested that at Pittsburgh and UCLA experimental subjects at these sites might be expected in the future to have significantly lower HHA utilization rates and reimbursements.

Generalizing these results was difficult given the small number of demonstration participants using these services and the considerable variation in reimbursements. The time trends seen in the Pittsburgh and UCLA data, while encouraging, did not cover a sufficiently long time period to support a finding that experimental subjects would continue to have lower utilization rates and reimbursements.

In the second interim Report to Congress, we reported that pre-demonstration inpatient utilization patterns were associated with the use of SNF and HHA services during Year 1. Exhibit 5-12 indicates that beneficiaries who had been hospitalized prior to the demonstration were

Exhibit 5-12

COBRA Medicare Prevention Demonstration Evaluation

Fee-For-Service Projects
Percent of Demonstration Enrollees Utilizing SNF and HHA Services
in Years 1-4
By Inpatient Admission in the Pre-Demonstration Year

		Percent With Any SNF Admission		Percent With Any HHA Visits	
Project	Year	With Pre-Demonstration Admission	With Pre-Demonstration Admission - With No Pre-Admission (Percentage Points)	With Pre-Admissio n	With Pre-Admission - With No Pre-Admission (Percentage Points)
Fee-For-vice Projects	1	2.5%	1.8***	15.2%	10.1***
	2	3.1%	1.9***	17.4%	10.2***
	3	4.1%	2.3***	18.7%	9.3***
	4	4.7%	3.0***	19.4%	9.4***
ns Hopkins	1	2.1%	1.6***	16.5%	11.5***
	2	2.0%	1.1***	15.3%	8.6***
	3	3.3%	2.2***	17.5%	9.7***
	4	3.0%	1.5***	15.8%	7.3***
sburgh	1	2.6%	2.0***	16.2%	10.4***
	2	3.1%	1.7***	21.7%	12.7***
	3	3.6%	1.4***	22.8%	10.8***
	4	4.1%	2.3***	23.9%	11.3***
LA	1	3.1%	1.9***	10.9%	6.8***
	2	5.2%	3.5***	14.8%	10.1***
	3	6.4%	3.7***	14.7%	7.8***
	4	8.5%	6.7***	18.3%	11.0***

:: COBRA Medicare Prevention Demonstration Expenditure and Utilization Files.
*** Difference significant at .01 level

significantly more likely during *all years* of the demonstration, overall and at each project, to use SNF and HHA services. Between 2.0 and 8.5 percent of those with pre-demonstration inpatient admissions had some SNF use, compared to 0.5 and 2.7 percent for beneficiaries with no prior hospitalizations, and for HHA services the percentages were 10.9 to 23.9 with pre-demonstration admissions compared to 4.1 to 12.6 percent without. The association was particularly consistent for HHA services. The size and significance of these differences suggested that enrollees who entered the demonstration with prior inpatient admissions were at greater risk for institutional and HHA use in subsequent years, regardless of their demonstration status.

Experimental subjects who used no demonstration services were initially more likely to be at risk of hospitalization and post-hospital care than subjects who used demonstration services. The incidence of HHA services in Year 1 was higher among non-users of the demonstration services at all sites, but in Year 2, this association had started to disappear (see Exhibit 5-13). By Year 4, experimental subjects who had not used the demonstration services at any of the fee-for-service sites were no more likely to use SNF or HHA services than subjects who used the demonstration services.[15]

Utilization of Ambulatory Care: Total Part B and Office-Based Physician Visits

As simple comparisons of unadjusted average Part B reimbursements and utilization of office-based physician visits show in Exhibit 5-14 and 5-15, access to demonstration services was not consistently associated with changes in utilization of ambulatory care services. The analysis of Part B utilization and expenditures was necessarily restricted to the third and fourth years after an individual's intake because of incomplete Part B Medicare data for fee-for-service participants prior to these years. In addition, the data only allowed the consistent measurement of office-based physician visits.

In Years 3 and 4, slightly less than 90 percent of enrollees in fee-for-service projects incurred a Part B expenditure (see Exhibit 5-14). Across all projects, experimental subjects who used Part B services had significantly fewer total Part B reimbursements in both years compared to similar

[15] Year 4 users of the demonstration services at UCLA included experimental and control subjects.

Exhibit 5-13

COBRA Medicare Prevention Demonstration Evaluation

Fee-For-Service Projects
Percent of Experimental Subjects Utilizing SNF and HHA Services
in Years 1-4
By Use of Demonstration Services

		Percent With at least One SNF Admission		Percent With at least One HHA Visit	
Project	Year	Used No Services	Used No Services - Used Services (Percentage Points)	Used No Services	Used No Services - Used Services (Percentage Points)
Projects	1	1.7%	**0.9****	9.8%	**3.9*****
	2	2.3%	**0.9***	10.0%	1.2
	3	2.6%	0.5	10.6%	-0.4
	4	2.4%	0.5	11.5%	0.3
ins	1	1.4%	**0.9****	8.6%	**2.9****
pkins	2	1.1%	0.1	7.2%	-0.4
	3	1.6%	0.1	8.4%	-1.2
	4	2.2%	0.5	10.1%	1.2
sburgh	1	2.3%	1.5	13.4%	**6.8*****
	2	4.6%	**3.2****	19.6%	**9.3*****
	3	4.8%	**2.6***	17.2%	4.3
	4	4.6%	**2.7***	17.9%	4.9
LA	1	2.1%	0.5	10.7%	**6.5*****
	2	5.0%	**3.0***	11.1%	**4.9****
	3	4.2%	1.2	12.5%	**5.0***
	4	1.3%	-1.0	10.1%	1.2

e: COBRA Medicare Prevention Demonstration Expenditure and Utilization Files.
* Difference significant at .10 level
** Difference significant at .05 level
*** Difference significant at .01 level

EXHIBIT 5-14

COBRA Medicare Prevention Demonstration Evaluation

Fee-for-Service Projects
Medicare Part B Reimbursements[a]
in Years 3-4

				Given Any Part B Reimbursement			
		Percent with Any Part B Reimbursement		Total Reimbursements		Reimbursements Per Day Alive	
Project	Year	Control	E-C[b] (Percentage Points)	Control	E-C[b]	Control	E-C[b]
Fee-For-Service jects	3	89.4%	-0.5	$2,027	-$147**	$6.41	-$0.47*
	4	88.4%	0.2	$1,975	- $327***	$6.25	-$0.43
ns Hopkins	3	89.1%	-0.5	$1,922	-$141	$6.43	-$0.76*
	4	88.8%	0.6	$1,941	-$205**	$6.24	$1.22
sburgh	3	89.8%	-1.2	$1,445	$26	$4.33	$0.26
	4	88.3%	-0.6	$1,306	-$35	$4.31	-$0.36
LA	3	89.7%	0.9	$3,032	$187	$9.14	$1.07
	4	87.9%	1.6	$2,952	-$436**	$8.91	-$1.33**

:: COBRA Medicare Prevention Demonstration Expenditure and Utilization Files.
: [a] All expenditures in 1992 dollars
[b] Difference between experimental and control subjects
* Difference significant at .10 level
** Difference significant at .05 level
*** Difference significant at .01 level

EXHIBIT 5-15

COBRA Medicare Prevention Demonstration Evaluation

Medicare Part B: Office-Based Physician Visits Expenditures[a] and Utilization in Years 3-4

				Given at Least One Office-Based Physician Visit			
		Percent with at Least One Office-Based Physician Visit		Reimbursements		Number of Visits	
Projects	Year	Control	E-C[b] (Percentage Points)	Control	E-C[b]	Control	E-C[b]
Projects	3	84.3%	0.0	$208.94	-$23.87***	7.9	-0.3**
	4	82.6%	0.0	$194.53	-$24.70***	7.7	-0.1
ns	3	79.9%	1.5	$140.55	$2.41	6.3	0.1
pkins	4	79.7%	1.2	$138.83	$3.73	6.7	0.1
sburgh	3	82.5%	-1.1	$115.76	$1.27	6.6	0.0
	4	81.3%	-1.5	$106.35	$3.12	6.3	0.1
LA	3	84.6%	2.1	$470.28	-$19.86	13.1	-0.3
	4	82.1%	1.3	$425.79	-$35.39*	13.4	-0.3
Diego	3	88.2%	0.5	n/a		9.6	0.0
	4	83.4%	0.0	n/a		8.6	0.2
shington	3	89.9%	0.0	n/a		6.5	-0.4
	4	87.9%	2.1*	n/a		6.1	0.2

e: COBRA Medicare Prevention Demonstration Expenditure and Utilization Files.

a All expenditures in 1992 dollars

b Difference between experimental and control subjects

* Difference significant at .10 level

** Difference significant at .05 level

*** Difference significant at .01 level

control subjects. In Year 3, the difference was $147 ($p<.05$), by Year 4 the difference had grown to $327 ($p<.01$). Despite the differences in total reimbursements, reimbursements per day alive were not significant between the two groups during Years 3 and 4. When Part B reimbursements were analyzed at the project-level differences between experimental and control groups only appeared in Year 4. At Johns Hopkins, total reimbursements for experimental subjects with Part B use were $205 less than those of control subjects ($p<.05$). Experimental subjects with Part B use at UCLA had total reimbursements that were $436 less than reimbursements for control subjects ($p<.05$). The difference in reimbursements per day alive at UCLA were $1.33 ($p<.05$).

Exhibit 5-15 indicates that the only associations between utilization and reimbursements for office-based physician services were seen when the data were pooled across all projects. Overall, between 83 and 84 percent of enrollees had an office-based physician visit in Years 3 and 4, but control subjects were no more likely to have a visit compared to experimental subjects. In Year 3, across all projects, experimental subjects had lower average office-based physician reimbursements (a difference of $24, $p<.01$) and 0.3 fewer visits ($p<.05$). In Year 4, experimental subjects who used office-based physician services continued to have fewer reimbursements for those visits ($25 less than control subjects, $p<.01$), but experimental and control groups had the same number of visits. When differences in utilization and reimbursements for office-based physician services were analyzed at each project, no statistically significant differences between experimental and control subjects were found.

The differences in utilization of office-based physician services across the fee-for-service and managed care sites were not as pronounced or as consistent as the differences in hospitalizations. Managed care participants were more likely to have an office-based visit, 83 to 90 percent of participants in Years 3 and 4 respectively, compared to those at the fee-for-service sites, 80 to 87 percent. However, the number of office-based physician visits did not show a distinct pattern. Participants at Johns Hopkins had the fewest office-based physician visits, 6.3 to 6.8 visits, while those at UCLA had the most, 12.8 to 13.4 visits.

These results do not support a finding that the demonstration was associated with changes in the utilization of Part B services in general and office-based physician services in particular. The overall significant differences in reimbursements among users of Part B and office-based physician services support the hypothesis that experimental subjects would have less costly acute care needs

in later years. This last result is necessarily confined to the fee-for-service projects, however, mitigating our ability to generalize the result to all provider types.

5.6 Discussion

These analyses indicate that the availability of demonstration services did not significantly affect utilization of Medicare-reimbursed acute care services. Demonstration effects were not apparent when Part A reimbursements were aggregated and estimated at either the pooled or the project levels. Part B reimbursements, when aggregated across the fee-for-service projects, were associated with statistically significant differences that might be considered demonstration effects. However, these findings were not supported by findings based on measures of ambulatory care utilization.

While participation by experimental subjects was high, (slightly over 80 percent of experimental subjects used intervention services), the relatively small number of subjects who did not use the demonstration services included:

- some who died, many of whom were hospitalized and effectively unable to participate in the demonstration;
- some who were ill and hospitalized but survived — a certain percentage of these had been hospitalized in the year before the demonstration and probably entered predisposed to illness and further hospitalizations during the demonstration. Others, with no prior use, required hospitalization during the intervention service period and may have been too ill to participate.
- some who survived without major medical events and who did not participate, for various reasons; some moved out of the area; some may have decided not to participate for personal reasons.

The hypothesized initial increase in acute care use among experimental subjects did not materialize. In addition, over the later years of the demonstration, few statistically significant reductions were detected in utilization among experimental subjects relative to the control subjects.

In summary, the COBRA demonstration did not produce any findings to suggest that the availability of preventive services affected the use of acute care services. For the approximate 80 percent of the experimental subjects who actively participated, neither increases nor reductions in

utilization of non-waivered services were detected. It is possible that even 4 years of claims data cannot provide an adequate test of effects of preventive services on utilization of acute health care services among the elderly. Over a longer time frame, experimental subjects who survive may continue to obtain services similar to those provided by the demonstration and experience improvements in health status and reductions in utilization relative to control subjects. However, the demonstration data provide no evidence to support such a predication.

6.0 EFFECTS OF THE DEMONSTRATION: VARIATIONS AMONG THE DEMONSTRATION PROJECTS

As earlier chapters in this report show, COBRA investigators fashioned diverse preventive packages and service delivery formats. This diversity of interventions suggests a range of opinions among clinicians and researchers about the underlying behavioral models that may link public policy incentives, elders' use of preventive services, and subsequent health-related outcomes. Investigators also chose to measure outcomes of the demonstrations differently, most notably in indicators of physical and mental well-being. In spite of these differences, final reports from the demonstration projects shared a common theme: although Medicare prevention programs successfully recruited beneficiaries and providers and achieved some short-term changes in beneficiaries' health-related behaviors and attitudes, these programs collectively were associated with few immediate or lasting effects on health status and behavior, and virtually no effects on health services utilization and costs.

This chapter reviews methods and findings reported by the five COBRA demonstration projects, and findings from an earlier Medicare prevention demonstration in North Carolina.[1]

6.1 Analytic Approaches to the Evaluation

Research Designs and Behavioral Models

All of the COBRA projects implemented demonstrations to test the cost-effectiveness of providing elders access to subsidized packages of preventive services. Therefore, it was appropriate that the projects evaluate their interventions by comparing outcomes for all experimental subjects (who had access to the services) and all control subjects (who did not), regardless of who in the experimental group actually used preventive services. However many of the projects also analyzed the behaviors and outcomes of experimental group members who in fact used demonstration services.

The logic underpinning this demonstration, the COBRA model, assumed that cost is an important barrier to more use of preventive services by Medicare beneficiaries. Accordingly, if prevention becomes a covered Medicare benefit, the "demand" for preventive services will increase

---

[1] The term "COBRA projects" as used in this chapter refers to the five original demonstrations and North Carolina, unless otherwise noted.

as price decreases (to zero in the demonstrations, absent any beneficiary copays). Concomitantly, the "supply" of preventive services should increase, if Medicare payments to physicians make prevention competitive with other uses of physicians' professional time.

None of the COBRA projects accepted this model without modification. At a minimum, the projects used experimental group training materials motivated by non-economic theories about barriers to prevention use; i.e., barriers based on lack of understanding, on misguided preferences, on perceptions of low self-control, or on perceptions that preventive services are ineffective may be as important as price in determining use of preventive services among the elderly. For example, San Diego investigators focused on enhancing experimental group members' perceptions of control over their lives, using program materials that stressed recognition of life changes, developing coping skills, and maintaining independence.

Only Washington presented an explicit model of the behavioral changes needed to effectuate an increase in use of preventive services. Using concepts of social learning theory, Washington investigators hypothesized that persons who see themselves as able to acquire or maintain healthy behaviors and manage or stop less healthy behaviors and who believe that healthy behaviors tend to produce favorable health outcomes are most likely to use preventive services. Interventions that increase these feelings of self-efficacy or make individuals more confident that their changed behavior will be efficacious should thereby increase their use of preventive services. The effects of increased prevention utilization on costs and health outcomes in turn depend on whether behavior change is concentrated appropriately among individuals most at risk.

Randomization and Attrition

All of these COBRA projects randomly assigned eligible beneficiaries to experimental and control groups. Experimental group members were given access to subsidized preventive services and control group members were not[2]. Random assignment generally protects against self-selection bias in estimates of demonstration effects. Once the Medicare beneficiaries had agreed to participate

---

[2] At the UCLA site, control subjects were given access to the preventive services beginning in Year 2 of the demonstration.

in the demonstration, enrollees could not then select experimental or control status.[3] If randomization was successful, the two groups should have been similar in demographic characteristics, attitudes, and baseline behaviors. Investigators could then estimate the effects of the demonstration by simply comparing mean levels or changes in outcome measures between experimental and control groups. Most of the COBRA investigators, concluding that the groups were reasonably well-balanced in baseline characteristics, presented bivariate tests of intervention effects, comparing outcome measures between experimental and control groups.

However, several projects took additional steps to adjust for influences on health, health behavior, and costs other than experimental or control status in the demonstration. Three considerations prompted these actions.

1. Randomization cannot guarantee perfect balance in all relevant baseline characteristics between experimental and control subjects. Small but potentially important differences in factors such as age, predisposition to use preventive services, or baseline health status could confound estimates of intervention effects that are themselves expected to be relatively small. Most of the COBRA investigators supplemented unadjusted bivariate comparisons of means with comparisons adjusted for potentially confounding influences.

2. Even though randomization proved generally successful, experimental group members then self-selected into sub-groups (e.g., those who used no preventive services, those who used some services). The full effectiveness of a Medicare prevention intervention depends both on the willingness of beneficiaries to use preventive services as well as the effectiveness of the services in improving health. Johns Hopkins and Pittsburgh used multiple logistic regression to explore what factors determined decisions to actually use services.

3. Even if initial assignments to experimental and control groups were random, attrition from the program may not have been random. Voluntary attrition may have occurred differentially among experimental or control group members, depending on levels of interest, the relative demands that the demonstration placed

---

If participation in the experimental group had been voluntary, enrollees attracted to the demonstration might have been different from other members of the eligible population in attitudes and behavior directly related to the effectiveness of the demonstration intervention. For example, a positive attitude toward prevention might be associated with more use of preventive services. If volunteers for a prevention program are relatively more likely to have these positive attitudes, then enrollees will probably use more prevention services than non-enrollees regardless of the intervention, and statistical tests will tend to overestimate the effects of the intervention. Hence, the concept of self-selection bias - those who volunteer or select themselves into a specific program or intervention may have pre-existing differences or biases compared to those who do not self-select.

on experimental or control group members, and other factors.[4] Mortality rates may have differed between the groups for reasons that were entirely independent of demonstration status. Most of the project investigators reported at least some estimates with and without adjustment for attrition, accomplished generally by removing those who died (Johns Hopkins, North Carolina, Washington), especially in tests of effects on quality of well-being (QWB), a scale that puts a value of zero on death. San Diego and Washington experienced higher relative death rates among experimental subjects.[5] Consequently, these investigators calculated and compared utilization measures for those who died, those who disenrolled, and others. UCLA investigators found no difference in death rates between experimental and comparison groups, but computed separate estimates of effects for completers and non-completers. Mortality among control subjects exceeded experimental subjects' mortality in the Johns Hopkins project; investigators reported on analyses with and without enrollees who died during the demonstration. None of the projects attempted to use statistical adjustment techniques to correct for non-random attrition.

Design Validity

For the most part, these COBRA projects reserved demonstration services only for experimental group members.[6] However, many of the behavioral changes targeted by the demonstrations were within an individual's power to effect without benefit of a preventive service. Several COBRA project reports noted favorable trends in health-related behavior for both experimental and control groups, but no net demonstration effect. Such trends might represent (1) contamination or halo effects, leading control group members to respond as if they were in the experimental group because of explicit or unintended messages from the demonstration or (2) larger societal trends. None of the projects explored the question of whether or not the demonstration changed control group behavior.

In these demonstrations, voluntary attrition meant that an individual failed to participate in followup primary data collection for reasons other than death. For analyses of costs and utilization in the fee-for-service sites, for which data came from Medicare claims, individuals who survived the demonstration were included as enrollees throughout the period, regardless of whether or not they participated in followup surveys. In the HMO sites, enrollees were included in the cost and utilization analyses if they survived the demonstration and remained in the participating HMOs.

As Chapter 5.0 showed, the differential was statistically significant in San Diego but not Washington.

UCLA maintained this practice through the first year of the demonstration. In the second year, all experimental and control group members were invited to attend and receive services at the Screening and Health Promotion Clinic.

6.2 Beneficiary Enrollment and Utilization of Waivered Services

Investigators from all of the demonstration projects were generally pleased with their successes in enrolling from target populations of Part B-eligible elderly. As Chapter 3.0 shows, continued participation in the demonstration through response to follow-up surveys and, among experimental subjects, use of demonstration services, varied greatly among projects. When investigators in Washington tested the relationship between baseline health status and enrollment, they found that the very sick and the very healthy elderly were most likely to refuse enrollment; those with some underlying (but not debilitating) medical conditions and relatively high pre-demonstration use of ambulatory care services were most likely to enroll. Johns Hopkins investigators generally found a comparable pattern. In Baltimore, the "middle group" of elderly, those with some well-established pre-demonstration pattern of ambulatory utilization, were most likely to enroll and to use demonstration services. At baseline, Pittsburgh enrollees reported histories of disease and evidence of some health risks, as well as favorable attitudes toward prevention. Pittsburgh also reported that potential enrollees responded differently to two recruitment strategies: non-aggressive recruitment (with a mail invitation to participate) attracted 13.5 percent of beneficiaries targeted for this strategy, while aggressive recruitment (with a mail invitation and subsequent telephone contact) attracted 37 percent of the target population. However, costs per recruited enrollee were about $5 and $86 respectively, suggesting that, despite its higher yield, an aggressive strategy would not be cost-effective unless it attracted beneficiaries at high risk and likely to benefit substantially from preventive services. Most projects also found that the sickest and the oldest enrollees in the experimental groups were least likely to use any demonstration services, whereas education correlated positively with use.

Most projects did not try to explain why enrollees dropped out of the demonstration. San Diego explored this issue through a survey, but found no systematic differences between experimental and control subjects in the reasons for dropping out (almost a third of the initial enrollment group left, reporting lack of interest/time; only 14 percent disenrolled from the HMO or died).

Across all projects that provided them, influenza immunizations proved to be the component of the interventions that was most attractive to experimental group members and their providers. Each project that compared the rate of influenza vaccinations between experimental and control groups showed a large and statistically significant effect of experimental group status,

regardless of the organizational context for the demonstration (HMO or fee-for- service) and the relative responsibilities of beneficiaries and providers in arranging for demonstration services.

In projects where experimental group members were referred for other targeted clinical and health promotion interventions, results were mixed at best. Pittsburgh reported very low experimental group response to referrals for services that addressed addictive behaviors (17 percent of identified smokers participated in smoking cessation interventions, and 25 percent with excessive alcohol use as a risk factor sought alcohol counseling). Other Pittsburgh interventions reached somewhat larger percentages of identified risk groups (from 26 percent for diabetes education to 45 percent for a cholesterol lowering intervention), but none matched the 68 percent influenza immunization rate for this project. In projects where general preventive visits were provided in sequence, participation was higher in the first visit, regardless of content of the visit (with respect to clinical or health promotion services). During the first year, 63 percent of experimental subjects received the initial clinical visit in the Johns Hopkins demonstration, but only 32 percent received the follow-up health promotion visit (this pattern was repeated during the second year). In contrast, during the initial year in Washington, 90 percent received the initial health promotion (counseling) visit, and 89 percent followed up with a clinical (screening) visit.

In general, the projects did not study the role of providers in the success or lack of success of the demonstrations. Washington noted that patients of physicians involved in planning the demonstration were more likely to enroll. However, both Pittsburgh and North Carolina reported physician behavior that could have reduced the effectiveness of the demonstration services. In the Pittsburgh demonstration, Group 2 providers (office-based physicians) were less likely to conduct re-screenings for individuals with identified risks than were the Group 1 hospital-based providers. In North Carolina, although chart reviews showed that physicians increased the frequency of clinical screens in the experimental group relative to the control group, these physicians did not aggressively follow up on problems identified in these screens.

6.3 Medicare Expenditures and Utilization of Non-Waivered Services

None of the COBRA investigators expected to detect savings in Medicare non-waivered service expenditures during the first year or two of the demonstration; in fact, some predicted relative

increases in physician utilization among experimental group members, as subjects followed up on conditions detected during early prevention visits. Most predicted that savings would accrue eventually, perhaps during the fourth or fifth year or later, after the demonstration. Investigators predicted that savings would come from reductions in hospital admissions, the most costly episodes covered by Medicare, as experimental group members adopted more healthy behaviors, reduced health risks, and stabilized or improved their overall health. However, long term predictions of ambulatory use did not suggest significant savings, and investigators were largely silent on the demonstrations' likely effects on Medicare payments for institutional and home skilled nursing care.

In fact, none of the COBRA projects reported convincing evidence for savings in hospital expenditures attributable to the demonstration, and the predictions of short-term increases in ambulatory care utilization were not uniformly supported in all projects. The projects' findings generally confirm the conclusion of the cross-cutting evaluation, reported in Chapter 5.0. Exhibit 6-1 summarizes findings from the projects' final reports.

Hospital Utilization: Admissions, Days, and Charges

Both experimental and control group members experienced similar trends in hospital admissions, but projects differed in the direction of these trends. In both HMO projects (Washington and San Diego), hospital admissions rates declined steadily throughout the demonstration. In contrast, three of the projects that delivered services through the traditional fee-for-service system (Johns Hopkins, Pittsburgh, and North Carolina) reported rising admissions rates for both experimental and control groups. Two projects reported statistically significant differences between groups, but the differences were not consistent with predictions and could not be confirmed in the other projects; in both Pittsburgh and San Diego, hospital admissions rates among experimental group members exceeded control subjects' rates within the first 3 years of the demonstration, but not after. North Carolina reported a "tendency" for admissions among control subjects to exceed experimental subjects after the second year of their demonstration, but the difference was not statistically significant.

COBRA Medicare Prevention Demonstration Evaluation

Demonstration Effects on Medicare Expenditures and Use of Non-Waivered Services

	Hospitals		Physicians	Other
	Admissions	Days	Visits/Costs	
Johns Hopkins	Overall increase year 1 to year 2 No effects of the demonstration	Overall increase in days/enrollee, decrease in LOS Year 1 to Year 2 No effects of demonstration	Overall increase from Year 1 to Year 2 No effects of demonstration	Time/intervention interaction negative (P=.11), for other Part A
Pittsburgh	Overall increase in admissions per 1000 Groups 1 and 2 significantly higher than controls in Year 2, no difference in Year 3	Overall increase in days/1000, stable LOS Experimental groups exceed controls in Year 2, no difference in Year 3	Overall increase in visits per person No effects of the demonstration	Reimbursement trends consistent with utilization trends
UCLA	---	Overall increase through Year 3 in LOS No effects of the demonstration	Part B charges increased through Year 3 No effects of the demonstration	---
San Diego	Falling trend for survivors each year - Experimental group more likely to be admitted in Year 3) No effects of the demonstration	Increasing trend of days per admission, constant days per enrollee No effects of the demonstration	Rising trend through Year 2, falling to Year 3 - Experimental group had more visits in Year 2 No effects of the demonstration	No evidence of demonstration effects on "high users"
Washington	Overall decline from baseline through 48 months No effects of the demonstration	Total days per enrollee increased (Year 2) decreased, through Year 4 No effects of the demonstration	Visits higher among experimentals at Year 2, no difference at baseline, Year 4 - no general trend	Same patterns observed for HMO and contracted services, both utilization and costs
North Carolina	Cumulative admissions: evidence of controls beginning to exceed experimentals after Year 2	Cumulative days: controls beginning to exceed experimentals after Year 2	Part B costs used - same trend as hospitalizations but less pronounced	Total Part A charges, reimbursements: controls, begin to exceed experimentals after Year 2 Only probability of any Part A changes significantly lower in experimental group

Source: COBRA Demonstration Projects Final Reports; North Carolina Demonstration Project Final Report

Notes: --- = Data not available.

No clear trends emerged in inpatient days per enrollee or per admission. Several projects reported increases in lengths of stay and days per 1000 enrollees in both experimental and control groups, suggesting either that in these projects the needs of the average hospital patient increased during this period or that hospital practice on lengths of stay (LOS) changed across diverse areas and organizational settings. However, the net effect of increasing days and admissions per enrollee for the Johns Hopkins project was a decline in days per admission. Only Pittsburgh reported statistically significant differences between experimental and control subjects for some subgroups in the sample and, as with admissions, the findings proved counterintuitive, with experimental group LOS exceeding control stays in Year 2 of the demonstration (a difference which disappears in Year 3).

Ambulatory Utilization: Provider Visits and Charges

In all projects, ambulatory utilization increased during the demonstration in both experimental and control groups. In the two HMO projects (San Diego and Washington), the hypothesized short-run effect of the demonstration was observed; in Year 2, the average experimental subject had more ambulatory visits than the average control subject. Two projects (UCLA and North Carolina) measured ambulatory services as total Part B expenditures, which increased throughout the period with no demonstration effects.

Other Part A Charges

Two fee-for-service projects searched for demonstration effects on total Part A charges (North Carolina) and other (non-hospital) Part A charges (Johns Hopkins). North Carolina discovered its only statistically significant demonstration cost effect, with the probability of any Part A charges for experimental subjects exceeding the probability for control subjects in Year 2. Johns Hopkins, testing differences between experimental and control groups in trends of other Part A charges, estimated a negative association (experimental subjects' Part A charges increased more slowly than control subjects' charges), but the level of statistical significance was too small to be credible ($p=.11$).

6.4 Health Outcomes

Although the Federal Government has often used expected cost savings as the yardstick for evaluating proposed or actual new Medicare benefits, health practitioners tend to view

improvement in health outcomes as an equivalent or more important policy objective. The COBRA investigators used an array of indicators to capture effects of the prevention interventions on beneficiaries' health.

Most of the COBRA demonstrations measured health outcomes in four domains:

1. Mortality;

2. Morbidity, measured by bed days, restricted activity days, or prevalence of chronic conditions;

3. Health status, based on responses to a single question respondents to assess their health, from poor to excellent;

4. Physical, social, and mental function, measured separately using indicators of physical function such as ADLs or IADLs and measures of mental function, social isolation, or depression such as the CES-D scale, or measured together (four projects, Johns Hopkins, San Diego, Washington, and North Carolina, used versions of a QWB scale that combined self-reports of physician, emotional, and mental function into a single index). Other indicators used by some projects included clinical tests (hearing, vision, blood pressure) and self-reported pain.

In addition, UCLA provided oral health preventive services, and collected outcome measures tailored explicitly for this intervention.

Exhibit 6-2 reports the COBRA projects' findings within these four classes of health outcomes indicators. No clear patterns emerge from these data.

Mortality

Medicine and society have traditionally placed a high value on interventions that lengthen life. A considerable literature on the cost-effectiveness of certain preventive services (influenza and pneumococcal immunizations, screening for breast and cervical cancer) has calculated the net costs per added year of life, with or without adjustment for the quality of the added year.

Each COBRA project reported mortality rates for expeimental and control group members during the demonstration. In three of the projects (San Diego, Washington, and North Carolina), death rates were higher among experimental than control subjects; the difference was not statistically significant in North Carolina. Johns Hopkins recorded a higher death rate among control group

COBRA Medicare Prevention Demonstration Evaluation
Demonstration Effects on Health Outcomes

	Mortality	Morbidity	Self-Reported Health Status	Physical and Mental Function
Johns Hopkins	Death rate higher among controls	---	Experimental group declined less than controls	QWB: downward trend (no trend if deceased excluded) - no effect of demonstration at 4 years, significant effect favoring experimental group at 2 years
Pittsburgh	---	Bed days, restricted activity days, increased for all groups No effects of the demonstration	---	ADL/IADL; no trends, no effects of the demonstration
UCLA	---	Bed days restricted activity days increase, Year 2 and decrease, Year 5 No effects of the demonstration	Experimentals "good to excellent" more than controls at 4 years	ADL/IADL increase in Year 2 decrease in Year 5: No effects of the demonstration Mental health index showed demonstration effect especially through Year 3
San Diego	Higher mortality rate among experimentals, Years 1,2	No effects on frequency of chronic conditions	No effects of the demonstration	No effects on level of depression (experimentals lower throughout but not significantly) No QWB effects
Washington	Higher mortality rate among experimentals Year 2, less effect at Year 4	---	Marginal demonstration effect at 2 years No effect at 4 years	Demonstration effects for survivors No effect (pain, health worry, depression, QWB) but differences generally favor experimentals (except QWB)
North Carolina	Death rate higher among experimentals than controls (but not statistically significant)	---	SPHS declined for all as did QWB evidence that experimental group who got screens/health promotion declined significantly less than controls	Experimental group QWB higher than controls at 2 year followup

Source: COBRA Demonstration Projects Final Reports; North Carolina Demonstration Final Report.
Note: --- = Data not available.

members. UCLA and Pittsburgh reported no difference in mortality between experimental and control groups.

Only Washington attempted to draw any conclusions about the relationship (if any) between the interventions and differential mortality rates. Impelled by the troubling suggestion that prevention might actually shorten life, Washington investigators explored four hypotheses about the reasons for higher mortality among experimental group members:

1. Experimental subjects may have been sicker at baseline than control subjects. Washington found a tendency in this direction, but the difference was not significant; when estimates of mortality were adjusted to remove the effects of this difference, experimental group mortality was still significantly higher than control group mortality.

2. Mortality effects may have been concentrated in a subgroup of beneficiaries. Washington investigators noticed that mortality rates were higher at 2 and 4 years into the demonstration for experimental group members 75 years and older. Tests on other subgroups, defined by stress levels and presence of chronic disease, were inconclusive.

3. Specific interventions, particularly those involving exercise and medications, may have had unintended adverse outcomes. Investigators used nurse-conducted chart reviews to confirm that neither the exercise nor the medications intervention appeared to be related to the mortality differential; as noted in Washington's Final Report (page 32), "..(none) of the people with cardiovascular deaths in the experimental group attended the exercise class, and 25 percent of the experimental group deaths were never exposed to the intervention."

4. Washington's inclusion of living will counseling in its package of preventive services may have increased mortality among experimental group members. In a chart review of experimental and control members with high predicted probability of death and a "serious medical event" sufficient to provoke a decision regarding aggressive treatment, Washington discovered that the percentage of cases with no life-sustaining treatment was higher in the experimental group (70 percent) than in the control group (33 percent), a finding that was supported in both unadjusted and adjusted estimates.

Washington investigators concluded that part of the differential mortality experienced in its demonstration could be defined as a demonstration effect: an outcome of counseling about non-

aggressive treatment provided to experimental subjects who participated in Washington's living will intervention.

Morbidity

Only three projects (Pittsburgh, UCLA, and San Diego) attempted to measure morbidity effects of the demonstration. In general, morbidity increased throughout the demonstration in both experimental and control groups. None of the tests revealed favorable effects of preventive services on bed days, restricted activity days, or prevalence of chronic conditions.

Health status

During the demonstration, self-reported health status tended to remain constant or decline for experimental and control group members in all COBRA projects. San Diego reported no relative improvements for experimental group members, and Pittsburgh did not measure this outcome. However, some improvements were reported for the other four projects. Both Johns Hopkins and North Carolina noted that the decline in health status was significantly less for experimental than for control subjects over the initial 2-year period. UCLA reported that, after 5 years, the percentage reporting "good" or "excellent" health was higher among experimental than among control subjects. Washington noted a marginal relative improvement for experimental group members after 2 years of the demonstration, an effect which, however, disappeared after 4 years.

Physical, social, and mental function

In general, multiple measures of function showed no effects of preventive interventions within the demonstration. Exhibit 6-2 notes certain exceptions. North Carolina and Johns Hopkins reported that QWB scores among experimental subjects were higher than control subjects' QWB scores after 2 years. However, as noted earlier, the control group mortality rate exceeded the experimental group rate in the Johns Hopkins demonstration; after removing all deaths up to 2 years into the demonstration, the favorable QWB effect disappeared. With the exception of UCLA, which reported apparent favorable effects of its intervention on mental health, none of the other functional measures (including UCLA's oral health indices) suggested statistically significant demonstration effects.

6.5 Health-Related Behavior

Most of the COBRA demonstrations' measurable effects were on the health-related behaviors of experimental group members. Behavior was measured to capture specific interventions designed by the projects:

1. Disease prevention behavior: immunization against influenza and pneumococcal pneumonia, and frequency of screens and exams.

2. Health promotion behavior: changes related to
   - addictive behaviors (smoking, drinking)
   - diet/nutrition (cholesterol levels, dietary fibre)
   - exercise (physical activity, specific fitness activities)

In addition, some the projects tried to determine the effects of the demonstration on enrollees' use of health information. Washington measured the frequency of advance directives, as a test of the effectiveness of living will counseling, and measured enrollees' perceptions of self-efficacy. San Diego measured enrollees' perceptions of their control over their future health status. Exhibit 6-3 compares project findings.

Behavior related to disease prevention interventions

The most successful components of the intervention package proved to be influenza and pneumococcal immunizations. Although effects, in terms of increased immunization rates, were typically largest in the early years of the demonstration, most projects recorded lasting effects when later data were collected. Immunization rates increased for both experimentals and control subjects in all projects, but they increased more rapidly among experimental subjects, producing statistically significant trend differentials between groups.

Two projects, Washington and North Carolina, reported significant increases in the frequency of screening and exams among experimental subjects relative to control subjects. Effects in Washington were found in breast self-exams, which were higher among experimental subjects at both the 2- and 4-year followup interviews. North Carolina detected significantly higher rates of several screens in its experimental group but added, in discussing its results, that physicians frequently failed to follow up on findings from positive screens.

Exhibit 6-3
COBRA Medicare Prevention Demonstration Evaluation
Demonstration Effects on Health-Related Behaviors

	Disease Prevention		Health Promotion				
	Screens/ Examinations	Immunizations	Addictive Behaviors	Diet/ Nutrition	Exercise	Health Information	Other
ns Hopkins	2 year demonstration effects on pap smears, rectal exams	---	4-year effect on smoking behavior No demonstration effects or alcohol behavior	---	---	---	---
sburgh	No demonstration effects on pap smear/mammogram	Demonstration effect on influenza vaccinations at Year 2 followup	No demonstration effects on smoking behavior	Declining cholesterol for all at risk participants (no effects of demonstration)	---	No differences in health awareness between experimental and control groups	---
LA	No effects of the demonstration	Demonstration effect on pneumococcal vaccinations in Year 3, on Influenza vaccinations	No demonstration effects on alcohol use (general improvement)	---	---	No effects of the demonstration	---
Diego	No effects of the demonstration (rising trend in frequency of screens in both groups)	Demonstration effect on influenza vaccinations strongest in Year 1	---	---	Experimental group more likely to report stretching	Apparent effect (experimental group more likely to exchange health info) in last year of study	Experimentals reported greater perceived control over future health status
shington	Demonstration effect on breast self-exam (Years 2,4)	Demonstration effect on influenza vaccinations (Years 2,4)	Overall reduced smoking, alcohol risk but no demonstration effect (no significant trend)	Positive dietary fat and smaller fibre effect (Year 2) Positive dietary fat effect (Year 4)	Physical activity demonstration effect (Year 2)	---	Advance directives demonstration effect (Years 2,4) Most behavioral changes showed experimental group improvement even if not significant
rth Carolina	Highly significant increase in all screens in experimental group	Demonstration effects on influenza and pneumococcal vaccinations	---	---	---	---	---

Source: COBRA Demonstration Projects Final Reports; North Carolina Demonstration Final Report.
Note: --- = Data not available.

Behavior related to health promotion interventions

Johns Hopkins, UCLA, Pittsburgh, and Washington reported on the effects of interventions targeted at smoking and excessive alcohol consumption. Washington and UCLA reported general reductions in risk related to addictive behaviors, but the availability of subsidized programs for experimental group members appeared to have no effect: control subjects improved at the same rate as experimental subjects. Only Johns Hopkins reported an effect (on reduced risk from smoking, over a 4-year period).

Pittsburgh and Washington reported on changes in risk from poor diet. For at-risk Pittsburgh enrollees in both experimental and control groups, cholesterol levels declined during the demonstration; however, as with addictive behaviors, the availability of targeted programs for experimental group members did not spur more rapid reductions in risk for them. In contrast, Washington reported a significant demonstration effect on reduced risk from dietary fat and a smaller positive effect on insufficient fiber at 2 years after followup (the dietary fiber effect disappeared at 4 years).

Short-term effects of the demonstration on physical activity were reported by San Diego and Washington. San Diego investigators noted that experimental group members were more likely to report stretching in their daily routines than controls. Washington reported a net increase in reported physical activity among experimental group members after 2 years.

6.6 Conclusions

In reviewing and discussing their findings, most of the COBRA investigators were justifiably pleased with the cooperation they received from beneficiaries and providers in the demonstration but were guarded and occasionally pessimistic about the effectiveness of their preventive services interventions among the elderly. The projects' own conclusions about major hypotheses tested in the demonstration are displayed in Exhibit 6-4 and summarized below.

1. **Elderly Medicare beneficiaries will use preventive services.** With the exception of Pittsburgh, the COBRA projects agreed that their recruitment efforts met or exceeded expectations. Most were also encouraged by the rate at which enrollees who were assigned to experimental groups actually used the demonstration services (although, as noted elsewhere, comparing use rates among projects is difficult due to differences in the

logistics of scheduling and providing services). Pittsburgh, which undertook a recruitment approach that was somewhat more aggressive than the other projects, declared success but took note of the difficulties involved. Pittsburgh also noted the wide disparities among risk groups in the rate of demonstration service use. North Carolina stressed its success in encouraging physician participation, noting that financial incentives increased the rate of screening among experimental group members but that the expected followup to these screens was not always forthcoming.

2. **Offering free preventive services for the elderly will reduce expenditures.** The COBRA investigators generally agreed that the demonstrations provided no evidence of savings for the Medicare program. North Carolina reported "trends" that appeared hopeful, but could not demonstrate statistically significant expenditure and utilization effects.

3. **Offering free preventive services for the elderly will improve health outcomes.** With scattered exceptions, the COBRA investigators agreed that data from the demonstration did not show improvements in health outcomes associated with the availability of free preventive services. Johns Hopkins noted modest health status effects, commenting that the effects were strongest among members of the experimental group who actually used the preventive services. UCLA cited evidence for improved mental health, and San Diego investigators concluded that they had observed both physiological and psychological improvements (including an overall decline in hypertension among both experimental and control subjects, attributed to a project policy of referring all who screened positive for hypertension for physician followup). Washington's conclusion that living will counseling might have increased mortality rates in the experimental group can be taken as evidence for an outcome effect. Whether this effect was in each case intended, or favorable or unfavorable, could not be determined solely from chart reviews.

4. **Offering free preventive services for the elderly will change health-related behaviors.** COBRA investigators contrasted the apparent success of the demonstrations in increasing immunization and screening rates with their relative failure in changing health risks related to addictive and lifestyle-related behaviors such as exercise and diet. Johns Hopkins noted that early diagnosis is probably more effective in this population than attempts to change behavior. Pittsburgh investigators commented that the elderly seemed to opt for the "easy" single-point-in-time services like influenza vaccinations rather than the more difficult long-term commitments to lose weight, exercise more frequently, or modify addictive behaviors. North Carolina drew no conclusions about health-related behaviors.

The final chapter of this report discusses the implications for Federal policy of findings from the COBRA projects and from the cross-cutting evaluation.

Summary of Conclusions Reported by Each Project

	Elders Will Use Preventive Services	Preventive Intervention Is Cost-Saving	Preventive Intervention Improves Health Outcomes	Preventive Intervention Changes Health-Related Behavior
Johns Hopkins	Generally successful; two-thirds used at least one preventive service	Little to no expenditure or utilization impacts (no increase in early years, no decrease in later)	Modest health status effect; (stronger for those who actually used preventive services) - "middle" group most likely to benefit	Early diagnosis probably more effective than attempts to change behavior Marginal improvement in smoking but almost none in physical activity or alcohol abuse. "Very hard to change behavior"
Pittsburgh	Successful but difficult process recruiting participants: variations among risk groups in rate of preventive service use	No evidence for cost/utilization impacts, evidence for "cost shift": those who used preventive services would have used them without the demonstration	No bed-day, ADL effects, no mortality differences	Elders opt for "easy" services (immunizations, screens)
UCLA	Recruitment goals exceeded; attendance by both low, and high-risk enrollees at Screening and Health Promotion	No evidence for cost, utilization impacts	Scattered effects - stronger evidence for improved mental health	Strongest impacts of this study on health behavior, especially immunizations
San Diego	Recruitment/delivery of preventive services was successful	No evidence for cost, utilization impacts	Physiologic/psychologic improvements noted; overall decline in hypertension	Successful in achieving some lasting effects with minimal intervention
Washington	Integration of health promotion into primary care is possible for older HMO enrollees	No evidence for cost, utilization impacts	No effects by health status;* No effects on quality-adjusted life years (except excess deaths among experimentals)	At 24 months, effects on exercise, dietary fat and advanced directives - those who used preventive services improved health risk in 9 of 16 areas
North Carolina	Physicians responded to financial incentives to screen, but little follow up provided	No effect at 2 years; "trend" toward lower costs among experimentals in 4th year	No quality-adjusted life years effects at 2 years	No analyses

Source: COBRA Demonstration Projects Final Reports; North Carolina Demonstration Final Report

1 While there were no overall effects on health status among experimental enrollees, some health effects appeared when Washington investigators restricted their analyses to "survivors"

7.0 FINANCING PREVENTION: OPTIONS FOR THE MEDICARE PROGRAM

Congress originally designed the Medicare program to insure elderly and disabled persons against the costs of acute medical events. In the past decade, public health advocates have lobbied to add preventive services to Medicare. Congress responded by mandating payment for vaccination against pneumococcal pneumonia and hepatitis B and, more recently, for screening mammograms, screening Pap smears and influenza vaccinations (each of these services was added to the program separately). Medicare began to cover influenza vaccinations at the end of an extensive cost-effectiveness study; others, like pneumococcal vaccination, entered the program at a time when evidence for its cost-effectiveness in an elderly population was sparse.

The COBRA demonstration was expected to provide a test of a packaged-service alternative to this incremental approach. In the demonstration, Medicare covered, at fixed payment rates, prevention packages that included HRAs, disease prevention services (diagnostic screening, immunizations) and health promotion services (counseling, training, and education). In certain respects, this method resembled bundled payment methodologies currently being tested for coronary artery bypass and cataract surgery. Packaged components of a "prevention module" were identified in each project. Each project knew in advance the total payment for each component. Providers and beneficiaries worked out the contents of the preventive packages. It was expected that providers would recommend targeted interventions appropriate to each experimental group member, based on risks of adverse medical events identified in the HRA; lists of possible interventions were spelled out in each demonstration's project plan, but payments were tied to "health promotion visits" rather than to alcohol counseling, exercise classes, or other specific areas.

What have we learned from the COBRA demonstration about preventive services in the Medicare program?

The promise of access to preventive services through Medicare is attractive to both beneficiaries and providers in certain environments.

With the exception of Pittsburgh, eligible beneficiaries were willing to enter the COBRA demonstration programs, having been told that they would then face even odds of gaining (or not gaining) access to free preventive services. Pittsburgh's difficulties may have been logistical, demographic, or both, perhaps a predictable outcome of recruiting from rural western Pennsylvania.

However since no other projects drew from predominantly rural areas, there is no way to separate ruralness from other characteristics of the Pittsburgh project that may have made recruitment difficult.

When offered access to preventive services, beneficiaries vary considerably among areas and settings in their willingness to actually use these services. Participation was high in the first visits offered experimental group members across all the COBRA demonstrations. Where providers were heavily involved in scheduling visits and where services were offered conveniently in centralized locations (UCLA, and Washington and San Diego, the two HMO-based projects) over 90 percent received both clinical screening and health promotion services. Where beneficiaries had to take much of the initiative, as in the Johns Hopkins and Pittsburgh projects, many experimental subjects who attended clinical screening visits did not follow up with counseling and health promotion.

Too little is known about the effectiveness of certain preventive interventions in elderly populations to support their inclusion as a Medicare benefit.

COBRA investigators noted the relatively short life of effects in the demonstration, particularly those that required continuous, disciplined commitment to new behaviors (e.g, controlling addictions, increasing physical activity). The COBRA projects were unable to shed new light on the efficacy of behavior modification interventions generally associated with health promotion. In contrast, most of the projects reported significant effects of the demonstration on the use of disease prevention services (screens, immunizations) many of which have been established in the literature as effective in the elderly population.

The COBRA model does not appear to be cost-effective for Medicare at this time.

As this report has shown, the demonstration provided no consistent evidence for longer-term savings in Medicare expenditures or for measurable improvements in health status and function associated with access to free preventive services. Based purely on traditional cost-effectiveness measures, there would be no compelling argument for adding a prevention package to the Medicare program. The demonstration provided no findings to suggest that packages might be cost-effective under certain circumstances but not others. COBRA findings could not even meet the very minimal

requirements that Congress wrote into legislation authorizing cost-effectiveness studies of influenza vaccine and therapeutic shoes for diabetics. Both of these services were to be added to the Medicare program unless the evaluators could demonstrate conclusively that they would not be cost-effective. In both cases, the evaluations were inconclusive, based on the available data, but the findings described plausible conditions under which the programs **could** be cost-effective. Based solely on the data collected in the COBRA demonstrations, there would appear to be no room for uncertainty.

Three caveats are in order, however. First, even though the demonstrations had been extended for 2 years to facilitate the evaluation, the 4-year time period during which cost effects could be observed was considered by some COBRA investigators to be too brief to permit an accurate assessment of potential savings. Second, the demonstration model for delivering prevention services may have been ill-suited for achieving sustained behavior change. Rather than continuous delivery and reinforcement of messages about health risks and appropriate responses, most of the COBRA demonstrations limited provider contacts to one or two disease prevention and health promotion visits during the demonstration period. Third, in the view of some investigators, the package model proved to be a blunt instrument for financing and delivering services and measuring effects. In hindsight, the complexity of the intervention made it difficult to focus attention on specific outcomes where effects might have been anticipated and recorded, such as the contribution of influenza vaccinations to reductions in pneumonia and influenza hospital admissions.

Implications for Policy

Although the COBRA demonstrations showed that some beneficiaries will use a Medicare prevention benefit, they did not show that exposure to this benefit will permanently change high risk behavior, alter rates of change in medical and functional status, or reduce utilization of acute health care services. Therefore, at this time, findings from the COBRA demonstration projects do not support the addition, to the Medicare program, of the package of broad-based preventive services provided to beneficiaries under this demonstration.

Appendix A

Characteristics of Enrollees By Site

COBRA MEDICARE PREVENTION DEMONSTRATION EVALUATION

BENEFICIARY SOCIO-DEMOGRAPHIC CHARACTERISTICS
BASELINE

	All Sites		Johns Hopkins		San Diego		UCLA		University of Pittsburgh		University of Washington	
	Experimental (n=7915)	Control (n=6434)	Experimental (n=2118)	Control (n=2117)	Experimental (n=899)	Control (n=901)	Experimental (n=973)	Control (n=937)	Experimental (n=2655)	Control (n=1225)	Experimental (n=1270)	Control (n=1254)
Gender												
Male	40.8	40.3	37.1	36.7	43.9	45.1	41.1	42.9	43.2	43.4	39.6	37.9
Female	59.2	59.8	62.9	63.3	56.1	54.9	58.9	57.1	56.8	56.7	60.4	62.1
Race												
White	93.9	91.1	87.4	83.5	94.4	94.0	87.2	87.6	100.0	100.0	96.7	95.8
Minority	5.9	8.2	12.4	16.2	4.6	2.7	12.7	12.1	0.0	0.0	3.0	3.7
Missing	0.2	0.7	0.2	0.3	1.0	3.2	0.1	0.3	0.0	0.0	0.3	0.6
Ethnicity												
Hispanic	0.8	1.0	1.4	1.7	2.2	1.9	1.2	1.3	0.0	0.0	0.0	0.0
Non-hispanic	97.8	96.9	98.3	97.8	86.4	85.5	98.7	98.4	100.0	100.0	99.7	99.4
Missing	1.4	2.1	0.3	0.5	11.4	12.7	0.1	0.3	0.0	0.0	0.3	0.6
Education												
High School Graduate	67.6	65.3	85.1	87.0	38.8	39.4	42.8	44.1	83.5	83.7	44.6	45.4
Some College	18.5	19.1	7.9	6.8	31.7	32.7	27.9	28.1	9.9	8.8	37.6	33.3
College Graduate	6.4	6.6	2.2	1.9	11.1	12.1	16.3	14.3	4.0	4.5	7.7	7.0
Graduate School	6.0	7.4	1.3	1.2	14.9	13.1	12.5	13.0	2.6	2.9	9.7	13.9
Other	0.6	0.7	2.1	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Missing	0.9	0.9	1.4	1.1	3.5	2.3	0.5	0.5	0.0	0.2	0.4	0.4

BENEFICIARY SOCIO-DEMOGRAPHIC CHARACTERISTICS (continued)

	All Sites		Johns Hopkins		San Diego		UCLA		University of Pittsburgh		University of Washington	
	Experimental (n=7915)	Control (n=6434)	Experimental (n=2118)	Control (n=2117)	Experimental (n=899)	Control (n=901)	Experimental (n=973)	Control (n=937)	Experimental (n=2655)	Control (n=1225)	Experimental (n=1270)	Control (n=1254)
Marital Status												
Married	59.8	57.9	46.0	45.4	60.1	60.6	60.3	60.6	68.0	69.6	65.3	63.4
Widowed	30.2	31.9	42.4	43.3	26.5	25.3	26.8	28.3	25.4	24.7	25.4	27.0
Divorced/Separated	5.6	6.2	5.2	5.8	8.7	8.6	9.8	8.0	2.3	2.5	7.9	7.3
Single	4.0	3.6	6.4	5.4	3.7	2.9	2.9	3.0	4.0	3.0	1.2	1.8
Other	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Missing	0.3	0.5	0.1	0.1	1.1	2.7	0.2	0.0	0.0	0.2	0.2	0.5
Living Arrangements												
Alone	30.1	30.9	33.3	33.1	33.2	29.7	34.7	34.0	25.5	26.5	28.5	30.0
With Others	69.3	68.5	66.6	66.8	65.0	68.2	65.3	66.0	74.2	73.4	69.5	68.7
Missing	0.7	0.6	0.1	0.1	1.9	2.1	0.0	0.0	0.3	0.1	2.1	1.4
Retirement Status												
Completely Retired	72.9	70.5	69.7	68.2	67.6	70.3	63.2	65.0	83.5	82.3	67.3	66.9
Partially Retired	7.9	7.7	1.8	2.0	10.8	7.6	21.3	22.0	6.6	5.7	8.4	8.5
Not Retired	3.4	3.7	5.3	5.2	1.6	2.0	10.6	7.2	0.8	1.7	1.3	1.8
Never Worked	15.1	17.0	23.2	24.6	18.6	17.7	4.5	5.8	9.0	10.2	20.2	18.9
Missing	0.8	1.2	0.0	0.0	1.5	2.6	0.4	0.1	0.1	0.1	2.8	4.0
Type of Residence												
Special Residence for Elderly	3.3	3.6	0.9	2.0	3.4	4.1	2.7	3.0	5.2	6.2	3.4	3.9
Single Family Home	81.7	79.6	92.3	89.4	68.9	72.1	53.8	55.2	88.5	86.0	80.3	80.2
Multiple Units	12.1	13.5	6.0	7.4	19.1	17.9	37.3	34.9	4.5	5.5	13.7	12.7
Other	2.6	3.1	0.8	1.2	6.1	5.0	6.0	6.7	1.7	2.2	2.4	3.1
Missing	0.3	0.2	0.1	0.1	1.7	0.9	0.3	0.2	0.2	0.2	0.2	0.1

BENEFICIARY SOCIO-DEMOGRAPHIC CHARACTERISTICS (continued)

	All Sites		Johns Hopkins		San Diego		UCLA		University of Pittsburgh		University of Washington	
	Experimental (n=7915)	Control (n=6434)	Experimental (n=2118)	Control (n=2117)	Experimental (n=899)	Control (n=901)	Experimental (n=973)	Control (n=937)	Experimental (n=2655)	Control (n=1225)	Experimental (n=1270)	Control (n=1254)
Household Income												
Lowest	11.2	12.5	33.1	33.1	1.5	0.8	1.8	1.2	4.5	5.3	2.2	1.5
Low-Middle	42.3	42.3	60.6	60.1	43.3	39.5	28.6	26.4	39.3	39.8	27.9	28.7
Middle	23.2	23.1	4.8	5.9	18.9	21.2	25.2	24.9	26.5	27.4	48.7	48.0
Middle-High	5.9	6.8	0.8	0.5	19.4	20.9	14.0	14.0	2.0	1.6	7.0	6.9
Highest	4.8	5.4	0.2	0.2	8.2	7.2	19.9	20.6	1.5	1.0	5.5	5.7
Missing	4.5	5.6	0.3	0.1	8.8	10.4	10.6	13.0	2.0	2.1	8.6	9.2
Refused	8.1	4.4	0.0	0.1	0.0	0.0	0.0	0.0	24.1	22.9	0.0	0.0
Usual Source of Care												
None	0.9	0.4	0.0	0.0	0.0	0.0	0.6	0.5	1.8	1.9	0.0	0.0
Private Physician	68.7	63.1	98.0	96.1	0.0	0.0	93.7	93.2	92.4	94.0	0.0	0.0
HMO	27.5	33.6	0.0	0.0	100.0	100.0	0.0	0.0	0.2	0.3	100.0	100.0
Other*	2.7	2.8	2.0	3.7	0.0	0.0	5.2	6.1	4.5	3.6	0.0	0.0
Missing	0.2	0.1	0.1	0.2	0.0	0.0	1.1	0.6	3.1	2.0	0.0	0.0
Age												
< 65 Years	0.1	0.2	0.0	0.1	0.7	0.3	0.1	0.2	0.2	0.3	0.0	0.0
65 - 70 Years	42.2	40.5	37.7	37.8	37.5	37.0	35.9	38.4	49.8	49.3	41.7	40.4
71 - 75 Years	32.1	30.5	27.9	26.1	36.8	34.6	30.9	31.2	35.0	34.5	30.4	30.8
76 - 80 Years	17.4	18.6	18.1	18.9	18.6	20.5	21.7	19.7	14.9	15.8	17.3	18.4
81 - 85 Years	5.7	6.9	10.0	10.6	5.3	6.2	8.1	7.3	0.2	0.2	8.2	7.3
Over 86 Years	2.6	3.4	6.4	6.5	1.1	1.3	3.3	3.2	0.0	0.0	2.4	3.0

Source: COBRA Medicare Prevention Demonstration Minimum Data Set MDS

* Includes hospital outpatient departments and emergency rooms, free-standing health clinics and other health care settings.

COBRA MEDICARE PREVENTION DEMONSTRATION EVALUATION

BENEFICIARY RISK FACTORS
BASELINE

	All Sites		Johns Hopkins		San Diego		UCLA		University of Pittsburgh		University of Washington	
	Experimental (n=7915)	Control (n=6434)	Experimental (n=2118)	Control (n=2117)	Experimental (n=899)	Control (n=901)	Experimental (n=973)	Control (n=937)	Experimental (n=2655)	Control (n=1225)	Experimental (n=1270)	Control (n=1254)
Alcohol Consumption												
Drinkers	42.8	41.5	-	-	65.9	66.4	76.8	77.0	47.3	46.0	62.4	62.6
Non-Drinkers	29.4	24.8	-	-	32.4	30.4	22.8	23.0	50.6	52.7	37.1	36.5
Missing	27.8	33.8	-	-	1.8	3.2	0.4	0.1	2.1	1.3	0.6	0.9
Cigarette Consumption												
Smokers	11.3	11.9	15.5	16.9	6.8	6.9	7.2	9.2	12.4	11.7	8.4	9.2
Non-Smokers	88.2	87.6	84.5	83.1	89.2	89.9	92.7	90.8	87.7	88.3	91.1	90.6
Missing	0.6	0.5	0.0	0.0	4.0	3.2	0.1	0.0	0.0	0.0	0.6	0.3
Perceived Health Status												
Excellent	10.3	12.8	15.0	15.2	30.9	29.2	11.6	10.3	-	-	8.5	11.4
Very Good	17.7	21.5	33.1	33.6	52.6	58.5	26.2	25.4	-	-	35.0	34.5
Good	24.5	29.8	30.2	28.2	13.6	10.0	34.8	33.6	-	-	38.3	38.4
Fair	10.8	13.3	16.1	17.2	1.8	1.2	21.0	24.6	-	-	14.9	13.7
Poor	2.9	3.3	5.3	5.7	0.9	1.0	5.9	6.1	-	-	3.3	2.0
Missing	33.8	19.3	0.3	0.2	0.1	0.2	0.5	0.1	-	-	0.1	0.1
Disease-Specific Hospital Admission within Past 12 Months												
None	94.0	93.0	92.7	91.6	93.8	93.5	91.6	90.7	94.8	93.9	96.2	96.1
1 or More Admissions	5.9	6.7	7.3	8.4	6.2	6.6	6.9	7.8	5.2	6.1	3.8	3.8
Missing	0.2	0.2	0.0	0.0	0.0	0.0	1.5	1.5	0.0	0.0	0.0	0.1
Hospital Admissions within Past 12 Months												
Less than 2 Admissions	96.1	95.8	95.0	94.3	99.0	99.5	92.5	93.9	96.6	94.4	97.6	97.5
2 or More Admissions	3.7	4.0	5.0	5.7	1.0	0.6	6.0	4.6	3.4	4.7	1.2	2.4
Missing	0.2	0.2	0.0	0.0	0.0	0.0	1.5	1.5	0.0	0.0	0.0	0.1

Source: COBRA Medicare Prevention Demonstration MDS

CORRA MEDICARE PREVENTION DEMONSTRATION EVALUATION

BENEFICIARY FUNCTIONAL STATUS
BASELINE

	All Sites		Johns Hopkins		San Diego		UCLA		University of Pittsburgh		University of Washington	
	Experimental (n=7975)	Control (n=6434)	Experimental (n=2118)	Control (n=2117)	Experimental (n=899)	Control (n=901)	Experimental (n=973)	Control (n=937)	Experimental (n=2655)	Control (n=1225)	Experimental (n=1270)	Control (n=1254)
ADL Dependence												
None	83.4	80.9	90.5	90.5	-	-	92.8	95.7	97.1	97.6	94.7	95.4
1 or More Dependencies	5.1	5.1	9.5	9.5	-	-	7.0	4.3	2.8	2.3	4.9	4.6
Missing	11.5	14.1	0.0	0.0	-	-	0.2	0.0	0.1	0.2	0.4	0.1
IADL Dependence												
None	82.6	80.3	95.0	95.6	-	-	87.6	85.2	92.1	91.9	96.9	97.4
1 or More Dependencies	5.8	5.6	5.1	4.4	-	-	12.2	14.8	7.9	8.0	2.1	2.2
Missing	11.5	14.1	0.0	0.0	-	-	0.2	0.0	0.0	0.1	1.0	0.5
Incontinence												
Independent	47.6	43.0	-	-	78.9	78.7	56.1	53.8	70.4	72.4	50.8	53.2
Dependent	24.5	22.7	-	-	18.1	17.0	39.7	41.8	29.0	27.4	48.7	46.4
Missing	27.9	33.3	-	-	3.0	4.3	4.2	4.4	0.6	0.2	0.6	0.4
Health Conditions												
None	17.3	17.3	-	-	27.6	32.2	24.0	21.3	22.0	21.5	30.5	28.7
1 or More Admissions	54.4	49.1	-	-	71.8	66.9	75.9	78.7	78.0	78.5	66.9	68.3
Missing	27.3	33.6	-	-	0.7	0.9	0.2	0.0	0.0	0.0	2.7	3.0
Hearing/Vision Problems												
None	41.8	41.5	36.9	39.9	21.0	20.5	73.5	71.8	42.4	42.3	39.2	36.0
1 or Both Problems	58.0	58.1	63.0	60.0	77.5	77.5	26.3	28.1	57.6	57.7	60.7	63.8
Missing	0.2	0.3	0.1	0.1	1.5	2.0	0.2	0.1	0.0	0.0	0.1	0.2
Disability Days												
None	49.5	45.3	73.9	73.2	0.0	0.0	44.7	49.5	72.1	73.6	0.0	0.0
1 or More	21.4	19.2	24.6	24.7	0.0	0.0	48.6	43.7	26.4	24.0	0.0	0.0
Missing	29.2	35.5	1.5	2.1	100.0	100.0	6.7	6.8	1.6	1.5	100.0	100.0

BENEFICIARY FUNCTIONAL STATUS (continued)

	All Sites		Johns Hopkins		San Diego		UCLA		University of Pittsburgh		University of Washington
	Experimental (n = 7915)	Control (n = 6434)	Experimental (n = 2118)	Control (n = 2117)	Experimental (n = 899)	Control (n = 901)	Experimental (n = 973)	Control (n = 937)	Experimental (n = 2655)	Control (n = 1225)	Experimental (n = 1270)	Contr (n = 125
Bed Days												
None	87.0	87.0	96.1	95.3	99.2	99.1	51.9	51.4	83.6	80.2	97.4	97.4
1 or More	12.2	12.2	2.6	3.4	0.8	0.9	47.0	47.1	15.8	19.3	1.8	2.2
Missing	0.8	0.9	1.3	1.4	0.0	0.0	1.1	1.5	0.6	0.5	0.8	0.5

Source: COBRA Medicare Prevention Demonstration Minimum Data Set (MDS)

COBRA Medicare Prevention Demonstration Evaluation

Percentage of Medicare Beneficiaries Participating In The Demonstration At Baseline And Final Follow Up By Selected Socio-Demographic Characteristics

San Diego

	Baseline		Final Followup[a]	
	Experimental (n = 899)	Control (n = 901)	Experimental (n = 403)	Control (n = 390)
Female	56.0%	54.9%	53.6%	51.0%
Over 80 Years	6.5%	7.5%	3.0%	4.1%
White	95.4%	97.1%	95.0%	97.4%+
Married	60.7%	62.3%	62.7%	61.2%
Alone	33.8%	30.4%	32.1%	34.3%
Lives in Special Residence for Elderly	3.9%	4.1%	3.0%	2.6%
Some College Education	59.8%	59.5%	68.0%	67.3%
Retired	68.6%	72.1%	73.6%	77.6%
Highest Income	9.0%	8.1%	12.8%	9.6%

Source: COBRA Medicare Prevention Demonstration MDS.

[a]The percentages are based on San Diego's fourth follow-up survey.

Note: There were no statistically significant differences between experimental and control subjects.

COBRA Medicare Prevention Demonstration Evaluation

Percentage of Medicare Beneficiaries Participating In The Demonstration At Baseline And Final Follow Up By Selected Socio-Demographic Characteristics

Pittsburgh

	Baseline		Final Followup[a]	
	Experimental (n = 2,655)	Control (n = 1,225)	Experimental (n = 788)	Control (n = 383)
Female	56.8%	56.7%	63.8%	59.0%
Over 80 Years	0.1%	0.2%	0.1%	0.0%
White	100%	100%	100%	100%
Married	68.2%	69.7%	58.4%	60.6%
Alone	25.6%	26.6%	33.2%	33.5%
Lives in Special Residence for Elderly	5.2%	6.2%	5.0%	6.5%
Some College Education	16.5%	16.2%	16.8%	17.3%
Retired	83.6%	82.4%	85.0%	84.3%
Highest Income	1.5%	1.0%	0.5%	1.5%

Source: COBRA Medicare Prevention Demonstration (MDS).

[a]The percentages are based on Pittsburgh's second follow-up survey.

Note: There were no statistically significant differences between experimental and control subjects.

COBRA Medicare Prevention Demonstration Evaluation

Percentage of Medicare Beneficiaries Participating In The Demonstration At Baseline And Final Follow Up By Selected Socio-Demographic Characteristics

Washington

	Baseline		Final Followup*	
	Experimental (n = 1270)	Control (n = 1254)	Experimental (n = 1087)	Control (n = 1105)
Female	60.4%	62.1%	60.4%	62.3%
Over 80 Years	10.6%	10.3%	10.5%	9.9%
White	97.0%	96.3%	97.4%	96.3%
Married	65.4%	63.7%	60.5%	61.9%
Alone	29.1%	30.4%	33.1%	32.6%
Lives in Special Residence for Elderly	3.4%	3.9%	3.0%	3.5%
Some College Education	55.3%	54.4%	56.6%	55.3%
Retired	69.2%	69.7%	71.4%	72.2%
Highest Income	6.0%	6.2%	8.4%	8.5%

Source: COBRA Medicare Prevention Demonstration MDS.

*The percentages are based on Washington's second follow-up survey.

Note: There were no statistically significant differences between experimental and control subjects.

COBRA Medicare Prevention Demonstration Evaluation

Percentage of Medicare Beneficiaries Participating In The Demonstration At Baseline And Final Follow Up By Selected Socio-Demographic Characteristics

UCLA

	Baseline		Final Followup[a]	
	Experimental (n = 973)	Control (n = 937)	Experimental (n = 602)	Control (n = 613)
Female	58.9%	57.1%	59.0%	56.3%
Over 80 Years	11.4%	10.5%	9.1%	8.3%
White	87.2%	87.9%	88.2%	89.8%
Married	60.4%	60.6%	55.6%	59.4%
Alone	34.7%	34.0%	36.3%	33.6%
Lives in Special Residence for Elderly	2.2%	3.0%	3.5%	2.4%
Some College Education	57.0%	55.7%	61.1%	57.4%
Retired	63.5%	65.1%	70.4%	72.1%
Highest Income	22.3%	23.7%	27.1%	24.4%

Source: COBRA Medicare Prevention Demonstration MDS.

[a]The percentages are based on UCLA's fourth follow-up survey

Note: There were no statistically significant differences between experimental and control subjects.

COBRA Medicare Prevention Demonstration Evaluation

Percentage of Medicare Beneficiaries Participating In The Demonstration At Baseline And Final Follow Up By Selected Socio-Demographic Characteristics

San Diego

	Baseline		Final Followup[a]	
	Experimental (n = 2118)	Control (n = 2117)	Experimental (n = 1426)	Control (n = 1438)
Female	62.9%	63.3%	64.3%	66.3%
Over 80 Years	16.3%	17.1%	12.0%	12.3%
White	87.6%	83.8%	87.4%	84.7%*
Married	46.0%	45.4%	41.0%	42.3%
Alone	33.4%	33.1%	36.0%	33.1%
Lives in Special Residence for Elderly	0.9%	2.0%**	2.4%	3.9%*
Some College Education	11.5%	10.1%	13.8%	12.7%
Retired	69.7%	68.2%**	76.2%	76.4%
Highest Income	0.2%	0.2%	2.4%	2.7%

Source: COBRA Medicare Prevention Demonstration MDS.

Note: There were no statistically significant differences between experimental and control subjects.

[a]The percentages are based on Johns Hopkins' second fourth follow-up survey.

* Differences between treatment groups are significant at the .05 level.
** Differences between treatment groups are significant at the .01 level.

Appendix B

Characteristics of Enrollees
By Receipt and Non-Receipt of Intervention Services
By Site

COBRA MEDICARE PREVENTION DEMONSTRATION EVALUATION

CHARACTERISTICS OF EXPERIMENTALS BY RECEIPT AND NON-RECEIPT OF INTERVENTION SERVICES

JOHNS HOPKINS

	DID NOT RECEIVE SERVICES	RECEIVED SERVICES
SOCIO-DEMOGRAPHIC		
Female	67.3%	60.4%**
Over 80 Yrs	20.2%	14.0%**
White	89.5%	86.5%*
Married	40.8%	49.1%***
Lives Alone	34.8%	32.5%
Lives in Special Residence for Elderly	1.0%	0.7%
Some College Education	9.8%	12.6%*
Completely Retired --	68.5%	70.5%
Highest Income	0.1%	0.3%
FUNTIONAL STATUS		
Dependent in 1 or More ADLs	12.3%	7.8%***
Dependent in 1 or More IADLs	5.3%	4.9%
Incontinent	—	—
1 or More Health Conditions	—	—
Vision or Hearing Problem	36.5%	37.2%
1 or More Disability Days	27.5%	23.4%*
1 or More Bed Days	3.6%	2.1%*
RISK FACTORS		
Drinker	—	—
Smoker	16.2%	15.2%
In Good Health	46.4%	49.4%

Source: COBRA Medicare Prevention Demonstration MDS.

* Significant at the .10 level
** Significant at the .05 level
*** Significant at the .01 level

Note: Percentages are based on observations without missing values.

COBRA MEDICARE PREVENTION DEMONSTRATION EVALUATION

CHARACTERISTICS OF EXPERIMENTALS BY RECEIPT AND NON-RECEIPT OF INTERVENTION SERVICES

UNIVERSITY OF PITTSBURGH

	DID NOT RECEIVE SERVICES	RECEIVED SERVICES
SOCIO-DEMOGRAPHIC		
Female	53.9%	57.1%
Over 80 Yrs	0.5%	0.2%
White	100.0%	100.0%
Married	69.1%	68.1%
Lives Alone	23.0%	25.8%
Lives in Special Residence for Elderly	6.0%	5.1%
Some College Education	11.1%	16.9%**
Completely Retired	85.3%	83.4%
Highest Income	0.9%	1.6%
FUNCTIONAL STATUS		
Dependent in 1 or More ADLs	4.1%	2.7%
Dependent in 1 or More IADLs	12.9%	7.5%**
Incontinent	27.3%	29.4%
1 or More Health Conditions	79.7%	77.9%
Vision or Hearing Problem	45.6%	42.1%
1 or More Disability Days	20.2%	27.4%*
1 or More Bed Days	17.6%	15.8%
RISK FACTORS		
Drinker	39.5%	49.1%**
Smoker	17.1%	11.9%*
In Good Health	—	—

Source: COBRA Medicare Prevention Demonstration MDS.

* Significant at the .10 level
** Significant at the .05 level

Note: Percentages are based on observations without missing values.

COBRA MEDICARE PREVENTION DEMONSTRATION EVALUATION

CHARACTERISTICS OF EXPERIMENTALS BY RECEIPT AND NON-RECEIPT OF INTERVENTION SERVICES

SAN DIEGO

	DID NOT RECEIVE SERVICES	RECEIVED SERVICES
SOCIO-DEMOGRAPHIC		
Female	69.0%	55.6%
Over 80 Yrs	17.2%	6.1%*
White	89.7%	95.6%
Married	51.7%	61.0%
Lives Alone	41.4%	33.5%
Lives in Special Residence for Elderly	14.3%	3.5%
Some College Education	48.1%	60.2%
Completely Retired	55.2%	69.1%
Highest Income	3.7%	9.2%
FUNCTIONAL STATUS		
Dependent in 1 or More ADLs	---	---
Dependent in 1 or More IADLs	---	---
Incontinent	25.9%	18.5%
1 or More Health Conditions	57.1%	72.7%
Vision or Hearing Problem	13.8%	21.6%
1 or More Disability Days	---	---
1 or More Bed Days	0.0%	8.1%**
RISK FACTORS		
Drinker	62.1%	67.2%
Smoker	17.9%	6.7%
In Good Health	27.6%	31.3%

Source: COBRA Medicare Prevention Demonstration MDS.

* Significant at the .10 level
** Significant at the .05 level

Note: Percentages are based on observations without missing values.

COBRA MEDICARE PREVENTION DEMONSTRATION EVALUATION

CHARACTERISTICS OF EXPERIMENTALS BY RECEIPT AND NON-RECEIPT OF INTERVENTION SERVICES

UCLA

	DID NOT RECEIVE SERVICES	RECEIVED SERVICES
SOCIO-DEMOGRAPHIC		
Female	62.2%	58.1%
Over 80 Yrs	14.0%	10.8%
White	84.5%	87.9%
Married	56.3%	61.5%
Lives Alone	35.7%	34.5%
Lives in Special Residence for Elderly	4.1%	2.3%
Some College Education	51.6%	58.4%*
Completely Retired	60.1%	64.3%
Highest Income	24.7%	21.8%
FUNCTIONAL STATUS		
Dependent in 1 or More ADLs	14.1%	5.3%**
Dependent in 1 or More IADLs	15.6%	11.4%
Incontinent	40.7%	41.6%
1 or More Health Conditions	76.0%	76.0%
Vision or Hearing Problem	74.5%	73.4%
1 or More Disability Days	59.2%	50.3%*
1 or More Bed Days	56.8%	45.2%**
RISK FACTORS		
Drinker	74.5%	77.7%
Smoker	9.4%	6.7%
In Good Health	29.5%	40.1%**

Source: COBRA Medicare Prevention Demonstration MDS.

* Significant at the .10 level
** Significant at the .05 level

Note: Percentages are based on observations without missing values.

COBRA MEDICARE PREVENTION DEMONSTRATION EVALUATION

CHARACTERISTICS OF EXPERIMENTALS BY RECEIPT AND NON-RECEIPT OF INTERVENTION SERVICES

UNIVERSITY OF WASHINGTON

	DID NOT RECEIVE SERVICES	RECEIVED SERVICES
SOCIO-DEMOGRAPHIC		
Female	67.3%	59.8%
Over 80 Yrs	27.1%	9.0%**
White	95.3%	97.2%
Married	54.2%	66.5%*
Living Alone	37.6%	28.3%*
Lives in Special Residence for Elderly	10.4%	2.8%*
Some College Education	42.5%	56.4%**
Completely Retired	66.7%	69.5%
Highest Income	6.5%	6.0%
FUNCTIONAL STATUS		
Dependent in 1 or More ADLs	11.2%	4.3%*
Dependent in 1 or More IADLs	7.7%	1.6%*
Incontinent	5.9%	4.8%*
1 or More Health Conditions	72.1%	68.4%
Vision or Hearing Problem	33.7%	39.8%
1 or More Disability Days	---	---
1 or More Bed Days	1.9%	1.8%
RISK FACTORS		
Drinker	49.5%	63.9%**
Smoker	11.4%	8.1%
In Good Health	24.3%	45.3%**

Source: COBRA Medicare Prevention Demonstration MDS.

* Significant at the .10 level
** Significant at the .05 level

Note: Percentages are based on observations without missing values.

PROBABILITY OF ALL EXPERIMENTAL PARTICIPANTS RECEIVING INTERVENTION SERVICES WITHIN THE FIRST YEAR

(N = 7376)

Dependent Variable = Receipt of Intervention Services

Independent Variable	Coefficient	Standard Error
Intercept	1.31	.08**
Dummy: 65-74 Years	0.41	.07**
Dummy: 85+ Years	-0.91	.17**
Dummy: Female	-0.26	.07**
Dummy: Some College	0.32	.08**
Dummy: Smoker	-0.36	.09**
Dummy: Bed Days Past 12 Months	0.17	.10
Dummy: Risk of Hospital Admission	0.10	.24
Dummy: Hospitalization During Intake Period	0.01	.13
Interaction of Hospitalization During Intake Period and LOS	-0.02	.01
Dummy: HMO Site	1.32	0.11***

Source: COBRA Medicare Prevention Demonstration MDS.

** Significant at the .05 level
*** Significant at the .01 level

EXHIBIT

COBRA MEDICARE PREVENTION DEMONSTRATION

WAIVERED SERVICES RATES PER PARTICIPANT, BY PROJECT

	Experimentals	Controls
Johns Hopkins		
Health Risk Appraisal	$18.00	—
Screening with Pap	$145.00	—
Screening without Pap	$142.00	—
Counseling	$40.00	—
San Diego		
Health Risk Appraisal	$19.50	$19.50
Screening and Health Promotion	$145.77	—
UCLA		
Health Risk Appraisal	$25.00	$25.00
Screening and Health Promotion	$125.00	$125.00[a]
University of Pittsburgh		
Health Risk Appraisal	$30.00	$30.00
Screening and Health Promotion - Hospital Clinic	$150.00[b]	—
Screening and Health Promotion - Physician Office	$150.00[c]	
University of Washington		
Health Risk Appraisal	$20.00	—
Disease Prevention	$74.76	—
Health Promotion[d]	$88.92	—

[a] Controls participated in screening and health promotion in March and April, 1991.

[b] The rate per beneficiary decreased to $80 in Year 2.

[c] Reimbursement represents average annual per capita, up to $250.00 per beneficiary. The rate per beneficiary decreased to $45 in Year 2.

[d] Services included under "Screening" and "Health Promotion" are as indicated in Exhibit 7, except Washington. Includes blood pressure/pulse; vision; and hearing in health promotion rather than screening.